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EVOLUTION OF A REGIONAL WATER SUPPLY: A CASE STUDY

by

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Dallas, TX 75218

Contract No. 68-03-3104

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16. ABSTRACT

A study was done to describe the development of a regional water supply system around the City of Dallas, Texas, and to summarize the issues surrounding the regionalization process. Data were gathered from written histories of Dallas, the City of Dallas Water Utilities Department, newspapers, case briefs, testimony from hearings, memos and letters, city ordinances, legislative actions, and interviews with participants. A chronological history is outlined for the water supply development and disputes, but activities are also discussed separately without regard to chronology. No criticism is offered of any of the involved parties. Though the case applies only to Dallas, the issues are broad enough that others may profit from the experience.

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FOREWORD

The U.S. Environmental Protection Agency is charged by Congress with protecting the Nation's land, air, and water systems. Under a mandate of national environmental laws, the agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. The Clean Water Act are three of the major congressional laws that provide the framework for restoring and maintaining the integrity of our Nation's water, for preserving and enhancing the water we drink, and for protecting the environment from toxic substances. These laws direct the EPA to perform research to define our environmental problems, measure the impacts, and search for solutions.

The Water Engineering Research Laboratory is that component of EPA's Research and Development program concerned with preventing, treating, and managing municipal and industrial wastewater discharges; establishing practices to control and remove contaminants from drinking water and to prevent its deterioration during storage and distribution; and assessing the nature and controllability of releases of toxic substances to the air, water, and land from manufacturing processes and subsequent product uses. This publication is one of the products of that research and provides a vital communication link between the researcher and the user community.

This document has been prepared by Robert G. Ford acting as a contractor in fulfillment of contract 68-03-3104 with the Water Engineering Research Laboratory.

Francis T. Mayo, Director
Water Engineering Research Laboratory

ABSTRACT

The study builds a background of the Dallas region whose history has been one of expansion and growth. Because of World War II shortages of money, materials and manpower, the region had outgrown its water resources. City of Dallas leaders embarked on a program to acquire additional water sources so that the entire county of Dallas could grow, only to find themselves in the grip of the worst drought in the history of the area. During the drought, Dallas leaders continued to plan for the days when water would again be plentiful, and Dallas began serving water to its neighbor communities, but with the stipulation that the water sold was "surplus" to the needs of Dallas citizens. Once the drought broke, Dallas was able to drop the "surplus" water provision in its contracts and added clauses designed to make regionalization permanent. The new clauses raised questions in the minds of the customer cities' leaders concerning the role their cities would play in the continued growth of the area, and provided a trigger for controversy. The bulk of the text is, therefore, devoted to the issues arising from the controversies emanating from regionalization.

This Project Summary was developed by EPA's Water Engineering Research Laboratory, Cincinnati, OH, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

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ABBREVIATIONS AND DEFINITIONS

ABBREVIATIONS

Aubrey	Aubrey Reservoir Project
Commission	The Texas Water Rights Commission
Commissioners	The Texas Water Rights Board of Commissioners
DCWCID	Dallas County Water Control and Improvements District
Examiners	The Hearing Examiners for the Texas Water Rights Commission
Lakeview	Lakeview Reservoir Project
MGD, mgd	Millions of gallons per day
NTMWD	The North Texas Municipal Water District
OCLD	Original Cost Less Depreciation
PUC	The Texas Public Utilities Commission
PURA	The Texas Public Utilities Regulatory Act
TOCLD	Trended Original Cost Less Depreciation
TWRC	The Texas Water Rights Commission

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Special thanks is extended to Dan A. Brock of the Dallas Water Utilities Department for refreshing my memory and for his very able technical support and the logic he provided throughout the years while the Dallas-customer cities rate controversy raged.

SECTION 1

INTRODUCTION

PURPOSE AND SCOPE OF THE STUDY

The Administrator of the United States Environmental Protection Agency is required to identify and analyze the anticipated costs to units of local governments of compliance with potable water standards set forth in regulations published under the "Safe Drinking Water Act Amendments of 1977". The Administrator was advised to consider alternate methods of compliance with the regulations.

In some cases these costs may be quite high. Many small community water systems exist, and to most of them, compliance costs will translate into higher water rates. Higher water rates tend to limit community growth, even when an adequate quantity of water is available.

Considerable attention has been devoted by those involved in potable water service to ways of minimizing the impact of compliance costs to small community water systems. The banding of small systems into regional systems has often been suggested as a means for minimizing costs. The thought is that through regionalization of their systems, small communities can increase their financial strength and purchasing power enabling them to share costs and growth. On June 15, 1980, the Board of Directors, American Water Works Association adopted this resolution:

> "The American Water Works Association (AWWA) encourages the participation of water utilities in the identification of local and regional solutions to resource management and water supply service needs. If it is determined that a regional program is necessary or desirable, all affected water utilities working in concert with the lowest responsible level of government should participate in developing the program and promote the use of good utility management principles.
>
> State and federal agencies should support local government procedures necessary to develop a regional program and to ensure that governing laws allow equitable benefits to all water utilities involved, regardless of ownership."

Mere regionalization of water systems will not necessarily give the desired results to all the participants. In fact, the Dallas-customer cities rate controversy indicates that the road to regionalization is paved with difficulties. System development must be based upon sound engineeering and financial practice. Acceptable policies for serving the clients of the system must be determined. And the participants in the regional system must know and accept their role in the scheme.

The regional system which was developed by the City of Dallas, Texas, evolved over more than three decades. During this time the system grew enormously, and so did the economies of scale and populations of the communities served by the system. Unfortunate as the rate controversy was, it aired many of the problems of regionalization.

The purpose of this study is not to continue the rate controversy, nor is it an attempt to criticize the positions taken by any of the parties. Instead, its purpose is to summarize the issues arising from the controversy so that others may be able to avoid reliving the experiences of the Dallas area.

This study is limited to the Dallas case. We recognize that no other regional system is likely to have precisely the same set of circumstances and conditions that were faced in the Dallas area, but at least some of the issues should be similar to those arising in other areas.

METHODS USED

Information contained in this study comes from histories that have been written about the Dallas area and the City of Dallas Water Utilities Department, newpapers, case briefs, testimony from the hearings before the Texas Water Rights Commission, memos and letters, city ordinances, legislative actions and interviews with some of the persons involved directly in the rate controversy. Excerpts from these sources were then used to compile the study.

Sections 3 and 4 discuss the case study chronologically. Beginning with Section 5, the First Rate Case, the chronological approach is changed, and each activity is discussed separately, even though several actions may have been taking place concurrently. Not only were actions taking place concurrently, many were interrelated, as well, so that clear assignment of a single activity to a given span of time is nearly impossible. We believe the change in style will help readers understand the issues and activities much more clearly.

SECTION 2

CONCLUSIONS

If one issue of the Dallas-customer cities rate cases can be called the most important of all, it is the question of one community's ability to dominate others by controlling the water supply. In the hearings before the Texas Water Rights Commission, the issue was mentioned frequently, but it was not an issue the Commissioners could address directly.

In newspapers and elsewhere, the issue was given the direct approach. Both Dallas and its customer cities were growing rapidly, but the customer cities were growing more rapidly than Dallas, and they could continue to do so if they could get water. Dallas controlled virtually all the water supplies available to the region. With Dallas' history of aggressively seeking growth, little wonder that the customer cities feared Dallas would use water to satisfy its own desires for growth at the expense of the cities it served.

From the controversy, Dallas and the users of the regional system reached these conclusions concerning regionalization:

1. The customer cities would be furnished more information concerning the regional system. Such information would include disclosing facility expansion plans, financial plans, and above all, rate information. Customer cities had complained from the inception of the controversy about the lack of information. Dallas actually began in earnest to provide this information when they required the cost-of-service consultants in 1976 to meet with representatives of the customer cities at invervals during the course of the study.

2. To the extent possible, the customers of the regional system would be allowed to participate in the affairs of the system. Naturally, Dallas, as owner of the system, will want the final say on matters affecting expansion and operation of the system. But the non-owner customer cities were given more than cosmetic participation. For instance, during the 1976 cost-of-service deliberations, Dallas wanted to impose a "street use fee" based on gross sales of the Water Utilities Department. After hearing the protests of the cities, Dallas decided not to levy the charge on sales to them.

3. Rates would be determined in a manner agreeable to all the participants. The method for determining revenue requirements

would be flexible because rigidly fixed methods can result in inequities when circumstances change. Flat unit-of-volume charges were probably adequate during the early years when Dallas was serving a few small customer cities. When the customer cities became more numerous and larger, they imposed load demands that Dallas simply could not meet without heavy expenditures, hence the change to demand-volume rates. A similar problem arose with the acquisition of reservoirs. The cost of acquiring reservoirs for future supply became a major burden.

4. There would be no subsidization of any party through the use of the regional system's rates. Arguments could be made that the settlement is favorable to one or more parties, and so long as the challenger can define what "subsidization" means, a case could be made. If, however, the terms of the settlement can be accepted as meaning that rates determined under those terms are not subsidization to any party, then there are no subsidies. During the hearings, both the plaintiffs and the defendent argued that the other party was receiving a subsidy. Dallas said that water revenues collected by the plaintiffs and put into their general funds, which were otherwise supported by taxes, constituted a subsidy from Dallas. The plaintiffs called the low rates to Dallas' industrial users a subsidy provided by customer cities. The Texas Water Rights Commission simply ignored the issue, and the Texas Legislature refused to pass laws concerning it. So, these practices remained untouched, and parties can do internally as they please with their water revenues.

5. Ownership of the system would continue to rest with Dallas. Ownership entitles the owner to make the ultimate decisions regarding expansion, financing and conditions of service. Dallas officials recognized that their City's ownership of the system contributed to the fears of the customer cities that Dallas would use the system to control them. They considered putting the regional portion of the facilities into a separate entity, but rejected the idea as being impracticable. The settlement agreement allowed customer cities until September 1, 1982, to buy a portion of the reservoirs, but there were no takers.

SECTION 3

BACKGROUND

DALLAS TRIES TO GROW

Dallas is a city whose founding fathers and subsequent leaders have envisioned, planned, and worked toward its growth. Ambitious and energetic leadership has given Dallas a reputation and an atmosphere of "a city on the move". From its inception as an idea in John Neely Bryan's mind to the attitudes of today's vigorous and diversified population, the city and the surrounding areas have grown in land area, population, and financial resources.

Although other settlements had been located nearby, Dallas's existence as a town can be said to have begun in 1841 when Bryan stopped on the bank of the Trinity River. Bryan was not a casual settler merely trying to get as far away from neighbors as possible. His intention was to lay out a township and to promote its growth.

Bryan was a very versatile man with experience in many occupations. He had earned his living as a lawyer, store clerk, cattle trader, and land developer. Before coming to Texas he had taken part in planning and selling the town of Van Buren, Arkansas. According to William McDonald (1978) in Dallas Rediscovered Bryan visited Texas in 1839,

> drawn by the tantalizing tales of the lands to the south of the Red River and by a desire to establish a trading post to barter with the native Caddo Indians for hides and pelts. He immediately recognized that the area known as the Three Forks was a natural crossroads in the wilderness, one of the few sites for hundreds of miles with the potential for commercial and economic exploitation.
>
> The present-day Dallas mythology, which maintains that the city came out of nowhere and had no real reason for being, simply ignores the inevitability of Bryan's choice. The land that drew his attention in the fall of 1839 was the crossroads of two major Indian traces, which linked the culturally related Caddo tribes to the south and east; an ideal site for Bryan's purposes.

Promotion of a community at the site which is now downtown Dallas began with Bryan's offers of whiskey for men who would stop and look over the site and free lots to any newly-weds who would join him in settling the area. He pledged free land for a courthouse and free ferry service across the Trinity River if a new county seat was ever created at Dallas (Greene, 1975).

Real estate promotion and development is an American invention brought about by the new nation's desire to attract people and encourage land ownership. Stephen F. Austin brought the idea to Texas when he offered generous amounts of land to lure outsiders to settle in the area.

> And in Texas, no city was so conceived and created as a real estate promotion, and no city has been so controlled in its civic and municipal direction by land development, as has Dallas. The fact that there was no geographical features to arrange or confine city growth (only the Trinity River has had much effect) hastened the process. The history of the city of Dallas has been, from its inception, an embodiment of the uniquely American ideals of nineteenth-century capitalism--those concepts of individual initiative, competition, the profit motive, and the right to private ownership of property, which is understood to be tempered by Christian charity and virtue. From the moment John Neely Bryan staked out his ten-block townsite, his overwhelming motivation was to make a profit on the small portion of the great American frontier he had claimed (McDonald, 1978, p. 1).

The spirit of the American frontier was one of aggressive self-interest with the opportunity to acquire property and status. Thus Dallas was founded by and has been propelled, steered, and sustained "by a series of strongly independent, profit-seeking men who had few doubts about the moral rightness of capital advancement" (McDonald, 1978, p. V).

Dallas's beginning was based on one prime commodity. That commodity was land. People came to the area attracted by the availability of cheap, sometimes free, land. People and land sales generated a need for a financial structure far beyond simple buy-and-sell transactions. The activity required the services of lawyers, surveyors, title companies, bankers, and insurance companies. The outcome was the emergence of finance as a second economic factor in Dallas's growth.

By 1951, Dallas had a long history as a growth-oriented city. In that year, the City elected as its mayor, President and Chairman of the Board of the Mercantile National Bank, Robert L. Thornton, whose motto was "keep the dirt flying". Expansion-minded Mr. Thornton was to be mayor for 12 years. Dallas was growing rapidly, having increased its population from 294,734 in 1940 to 434,462 in 1950 (Table 1, p. 13) . Much of the growth was due to the expansion of defense industries during World War II and the Korean conflict. The leaders of Dallas wanted the growth to continue in peacetime as well.

During the rapid growth Dallas's water facilities had not stayed ahead of the demands being placed on them. The wars, or conflicts, not only had produced rapid population growth but had also brought about scarcities of materials and manpower. These shortages resulted in the curtailment of expansion of the water systems, both in the City of Dallas and the surrounding cities. Population growth of 47% between 1940 and 1950 was putting a strain on the system, but total demand for water grew even faster than the population. Total gallons per day consumption had grown from 28,195,000 in 1940 to 52,091,000 in 1950 an 85% increase. This increase in water consumption was the result of new industries locating in the area and of new household uses of water, such as dishwashers, automatic clothes washers, swimming pools, and lawn sprinkler systems.

Enlargement and expansion of all water facilities were absolutely necessary to the continuing growth of the city. At the time Dallas had two reservoirs, Lake Grapevine and Lake Lewisville called Garza-Little Elm Reservoir (Figure 1, p. 8) under construction. Lake Lewisville was an expansion of Lake Dallas, which was the principal source of surface water at the time. In Carrollton, Texas, the Elm Fork Treatment plant was under construction and nearing completion. Although Dallas had a few contracts to serve other communities with water, basically, Dallas was trying to supply only its own needs.

DROUGHT, 1951-1957

When water spilled over the dam at Lake Dallas on June 19, 1951, though no one knew it at that time, a period of drought had begun. The drought, which is the longest and most severe drought on record in Dallas County, was not over until water flowed over the dam at Lake Lewisville (enlarged Lake Dallas) on May 25, 1957.

Dallas Water Department officials began to feel uneasy about the water supply in the spring of 1952 when rainfall was short. They began to look for alternate sources of water. There were three alternatives: The West Fork of the Trinity River, the Red River, and underground water.

The West Fork of the Trinity River flows through the cities of Fort Worth, Arlington, Grand Prairie, and Irving. During the drought:

> This water was, if anything, even more concentrated than normal. Fort Worth had a drought as severe as Dallas, and they were not turning loose a drop of water from their lakes to help purge or dilute the river. Thus, there was very little flow in the West Fork other than the sewage effluent Fort Worth and Arlington turned loose. The river, especially in the summer, became so devoid of oxygen that hydrogen sulfide was given off at spots. A few of the houses near the river painted with lead-based paints were seen to have a visible brownish color from the formation of lead sulfide, especially in Grand Prairie (Bolding, 1981, p. 156).

Nevertheless the Dallas Water Department through laboratory experiments found that safe, palatable water could be derived from West Fork flow. Mr. Henry Graeser, then Assistant Superintendent of the Dallas Water Department, went before the Dallas City Council and drank some of the treated water to demonstrate his confidence in the West Fork of the Trinity as a viable water supply. He also went to Austin and conducted the same demonstration before State of Texas Health Department officials. Both bodies approved the supply and the treatment method. However, a poll of the public showed that the citizens of Dallas wanted nothing to do with recycled sewage effluent and the plans for treating West Fork water were dropped.

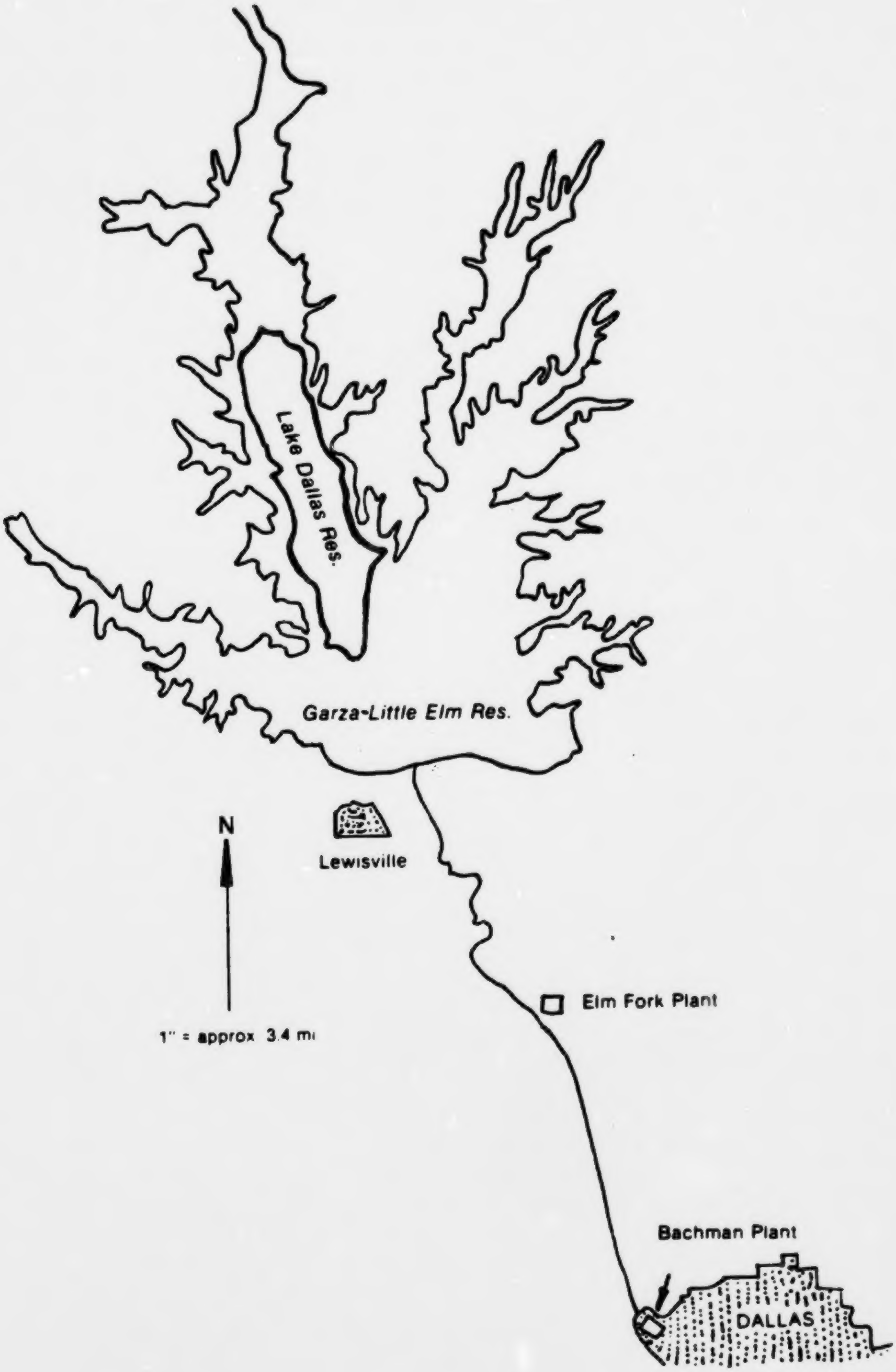

Lake Dallas Res.
Garza-Little Elm Res.
N
Lewisville
Elm Fork Plant
1" = approx 3.4 mi
Bachman Plant
DALLAS

Figure 1. Lake Dallas Expansion

Attention was then given to obtaining water from the Red River. The Red River forms the Texas-Oklahoma border and turns south to a point about seven miles north of Gainesville, Texas which is about 60 miles north of Dallas. The Elm Fork of the Trinity passes about three miles south of Gainesville and then flows into Lake Lewisville. A range of small hills separates the two rivers. A pump station containing six 18-million-gallons-per-day pumps was built on the Red River north of Gainesville. A 42-inch diameter concrete pipe was laid to carry the water over the hills from the pump station to the Elm Fork of the Trinity River (Figure 2, p. 8).

Dallas Water Department began pumping from the Red River in February, 1954, but the quality of the water was poor. The water contained natural concentrations of gypsum and salt, especially during periods of low flows. Periodically, water at the pump station contained very heavy concentrations of salt, some as high as 100,000 parts per million. Where these heavy concentrations appeared, the pumps had to be turned off in order to protect the quality of water in Lake Lewisville. At times, however, water leaving the Elm Fork treatment plant to be distributed throughout the Dallas service area contained 1450 parts of salt per million.

The salt content of the water from the Red River led to several problems. Evaporative coolers, which in the 1950's were the most commonly used means of cooling homes during the summer, became coated with salt. Citizens blamed the salt in the water for killing plants and corroding water heaters. The sodium content of the water was also a matter of great concern to people who had to restrict their sodium intake.

The third alternate source of water, wells, also produced difficulties and, compared with rising needs, very little water. The part of Dallas located west of the Trinity and known as Oak Cliff had a number of wells that were put into use. In addition, new wells were drilled. The wells were supplied from three different sands: Palaxy, Woodbine, and Trinity. The water was of good quality, requiring little treatment.

The use of well and surface water simultaneously caused a precipitate to form in water meters in many cases. The precipitate, in turn, collected to such an extent that the meters became stuck, depriving many customers of water until repairs could be made. This problem of disfunctioning meters was remedied by the addition of sodium hexametaphosphate at the wellhead.

Private wells, especially in the shallow sands, came into use during the drought. Although drilling one's own well and using water from it has never been illegal in Dallas, their use gave the Water Department concern when the wells were connected to private parties' home systems, creating a cross-connection between the untreated well and the Dallas system. The Dallas Water Department did have the authority to require that the cross-connections be removed, but locating them proved to be quite difficult. Some probably still exist.

The difference in the quality of water coming from the wells and surface water, particularly the mineral-laden Red River water, was not lost on Dallas citizens. One lady wrote a letter to Henry Graeser telling him that the Red

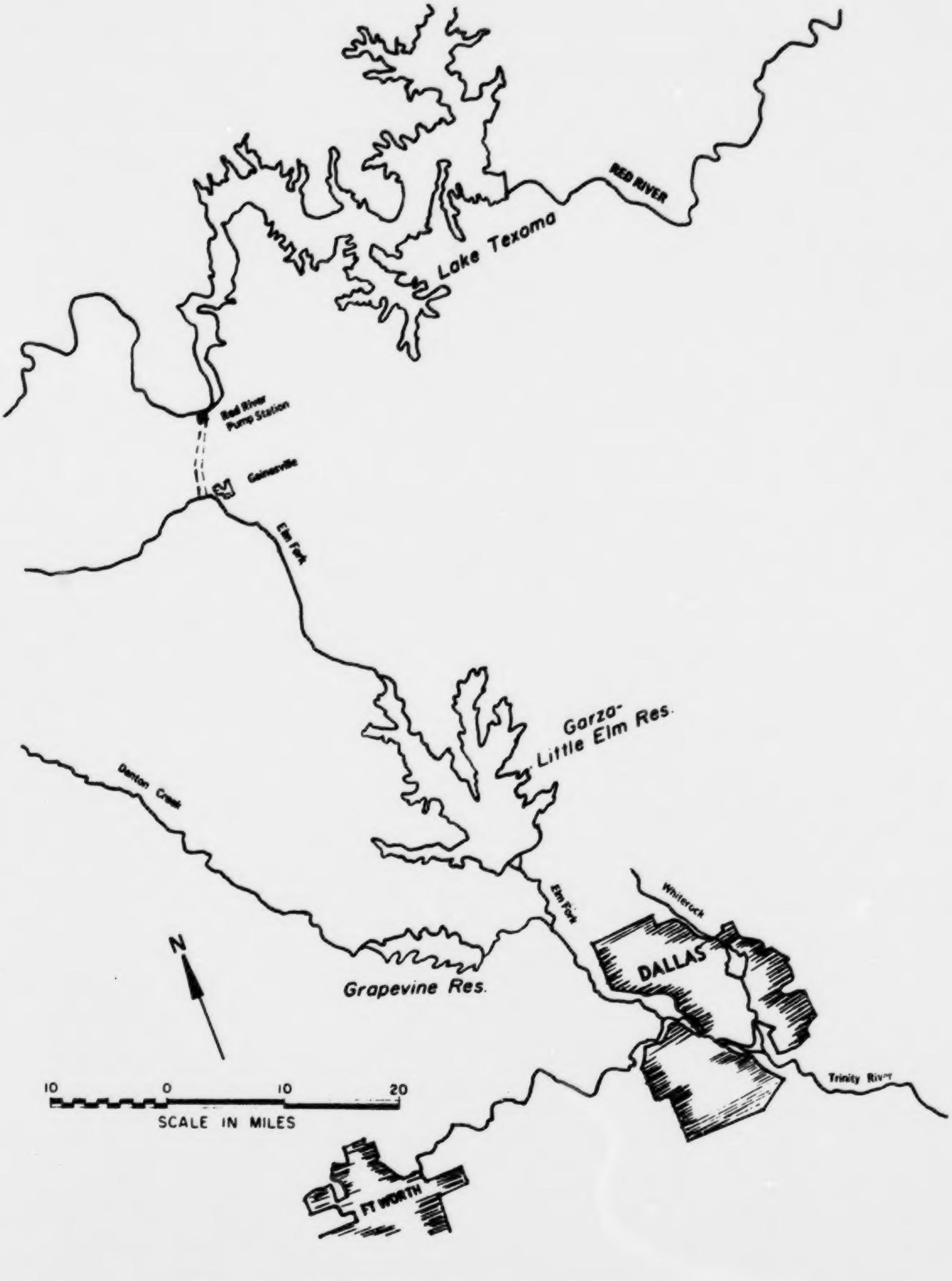

RED RIVER
Lake Texoma
Red River Pump Station
Gainesville
Elm Fork
Garza-Little Elm Res.
Denton Creek
Elm Fork
Whiterock
DALLAS
Grapevine Res.
N
10 0 10 20
SCALE IN MILES
Trinity River
FT WORTH

Figure 2. Red River Diversion

River water gave her cat diarrhea which disappeared when the cat was able to drink well water. She went on to ask if she could get water for her cat directly from a well.

Graeser thought that it would be a good idea to arrange for the lady to get well water for her cat. He also felt that it would be worthwhile for several wells to be designated and equipped for citizens to get well water for personal consumption. These wells were called "jug" wells because people could bring their jugs to the wells to fill them with water. The "jug" wells gave the public tangible evidence that the city government was interested in them and that city officials were doing what they could to help the citizens through a very frustrating period. Opening the wells for public use actually created a nuisance. Automobiles driving on unpaved areas around the wells made ruts where water was spilled. Jugs were broken and usually left at the well site. Crowds at the wells frequently necessitated a wait in line before jugs could be filled.

The quality of the water at Lake Lewisville was deteriorating as evaporation caused the water to become more concentrated with minerals. The search for usable water led to the decision to reactivate the old water treatment plant on White Rock Lake. The plant, which had been closed in 1930, was reopened in the spring of 1954. The taste of the water from White Rock Lake was different from, but no better than, that from Lewisville. Nevertheless the White Rock treatment plant, out of necessity, was kept in operation continuously through September, 1955, and during summer peak usage periods through 1964.

In an attempt to stretch the dwindling water supply, the Dallas City Council passed a rationing ordinance on March 18, 1953. This was well ahead of the usual sprinkling season, which characteristically begins in late May. The ordinance permitted lawn and shrubbery sprinkling only on alternate Saturdays, prohibited car washing except from a bucket, and provided that

> The municipalities to whom the City of Dallas sells water from its supply system or reservoirs shall likewise comply with the terms and provisions of this ordiance in their respective jurisdictions in order to obtain water service from the said City of Dallas water supply system of reservoirs.

The restrictions on sprinkling quickly proved to be too strenuous, so even before spring had passed, on May 25, 1953, the ordinance was relaxed to allow alternate day sprinkling. The ordinance carried a $200 penalty and a provision for terminating service to violators, but it was allowed to go unenforced after awhile because evaporation was taking as much water as was being used.

Neighboring cities were largely dependent upon well water during the drought. Some were supplementing their supplies by buying water from Dallas, but as the drought wore on and Dallas began putting more wells into use, the water table dropped rapidly. It became apparent that further development of ground water would not result in an increase in supply, so Dallas officials began concentration on the development of surface (reservoir) supplies.

Lake Lavon, located east of Dallas on the Elm Fork of the Trinity River, was built by the Corps of Engineers and operated by the North Texas Municipal Water District (NTMWD) to produce treated water for member cities and customer cities. The dam for Lavon was completed in 1953, but because of sparse rainfall in the watershed the lake did not fill immediately.

On March 16, 1954, Dallas entered a contract with the North Texas Municipal Water District to receive water from Lake Lavon. The contract allowed Dallas to take from the lake as much as 10 million gallons of water per day with a minimum of 2,737.5 million gallons per year, or an average (minimum) of 7.5 million gallons per day. However, Dallas had to wait until November 9, 1956, to begin taking water from the lake because the lake had to capture water and delivery facilities had to be built. When water became available from this new source, Dallas began decreasing its use of wells.

Those persons charged with keeping an adequate water supply found little comfort in the fact that the population of Dallas County continued to grow rapidly during the drought. Interestingly, the central city grew faster than the rest of the county in the decade from 1950 to 1960 (see Table 1, p. 13). Probably the greatest single factor in the population growth was the city's area growth due to the annexation of unincorporated communities. Dallas had grown in land area from 93.97 square miles in 1946 to 198.01 square miles in 1956.

Rainfall continued to decrease (see Table 2, p. 13). As early as the summer of 1952, boats using area lakes began running aground. The most disconcerting part of this was that the boats were striking bottom in places where water was supposedly deep enough for them to travel safely. Lake Dallas was filling with silt much more rapidly than had been reckoned, meaning that the available water supply was somewhat less than had been thought.

Dallas officials did not overlook many ideas to obtain more water. On November 11, 1952, the City Council authorized a six-month, $36,505, contract with Dr. Irving P. Krick to attempt to increase rainfall by seeding clouds with iodide crystals. The process seemed to have little effect on rainfall, and the contract with Dr. Krick was allowed to lapse. At one point Water Department officials considered another desperation idea of draining Lake Grapevine completely. Arrangements to do this would involve buying the fish from the Corps of Engineers and setting up equipment to retrieve the water in the area reserved for sediment.

By August, 1956, only 22.49 billion gallons of water remained in the reservoirs, and as much was evaporating as was being used. No rainfall was recorded in September, but rains of over two inches per month fell in October, November, and December. The drought was broken in May, 1957, when water finally spilled over the dam at Lake Lewisville, carrying much of the salt-laden Red River water out of the reservoir.

TABLE 1. POPULATION GROWTH, DALLAS AND DALLAS COUNTY

1900 - 1980

	Total Dallas County	City of Dallas		Outside the City of Dallas	
		Population	Percent of Total	Population	Percent of Total
1900	82,726	42,638	51.54	40,088	48.46
1910	135,748	92,104	67.85	43,644	32.15
1920	210,551	158,976	75.50	51,575	24.50
1930	325,691	260,475	79.98	65,216	20.02
1940	398,564	294,734	73.95	103,830	26.05
1950	614,799	434,462	70.67	180,357	29.33
1960	951,527	679,684	71.41	171,843	28.57
1970	1,327,695	844,401	63.60	483,694	36.40
1980	1,556,549	904,078	58.08	652,471	41.92

Source: Bureau of the Census

TABLE 2. RAINFALL IN DALLAS

(Successively at Four Different Locations)
All Amounts in Inches

	1949	1950	1951	1952	1953	1954	1955	1956	1957
January	8.46	3.99	2.00	0.88	0.68	3.03	1.35	1.66	1.55
February	3.66	5.59	2.65	1.57	1.39	0.70	1.95	1.92	1.12
March	2.76	2.14	1.15	1.74	3.55	0.59	1.70	0.14	6.36
April	2.52	5.11	1.26	5.69	5.03	4.62	1.98	3.99	13.85
May	8.94	6.02	4.57	5.20	3.10	4.98	4.14	4.12	13.74
June	4.91	4.49	6.21	0.37	0.83	2.00	4.63	0.50	3.02
July	0.59	4.10	0.63	1.66	0.38	0.53	0.73	0.13	0.25
August	0.79	3.45	1.97	0.27	1.74	1.64	1.56	0.86	0.62
September	1.82	2.73	3.81	0.38	0.93	2.92	2.47	0.00	3.22
October	8.04	0.44	2.89	0.05	3.20	2.98	0.82	1.56	4.02
November	0.18	0.71	0.62	7.54	2.77	1.56	0.81	3.53	5.25
December	1.38	0.13	0.25	3.06	1.71	0.88	0.29	2.30	2.14
TOTALS	44.05	38.90	28.01	28.41	25.31	26.43	22.41	21.75	55.14

SOURCE: Dallas Water Utilities Department Planning Division

POLITICAL EFFECTS OF THE DROUGHT

Political effects from the drought were certain. Dallas grew both in size and in population during the drought. The annexation of territory can be attributed, to some extent, to the fact that unincorporated communities in and around Dallas were growing rapidly, and the inhabitants wanted city services such as fire protection, water, sewerage, trash disposal, police protection, etc. These communities had no governmental organization to raise money to provide these services, so the people looked to Dallas. The City of Dallas officials, particularly people like Mayor Thornton, wanted to continue to pursue the American ideals of capitalism through growth. They did not necessarily feel that the growth had to be confined to Dallas proper. The support they gave the development of projects, such as Lake Lavon, for the benefit of the entire area, is testimony to their beliefs about area growth. Growth of just any sort was not enough, either. These persons felt growth must be planned if the area were to prosper. So it followed that unincorporated areas (and some incorporated towns) were annexed by the City of Dallas so that their growth would be planned.

Water resources, or the lack of resources, were particularly frustrating to the growth-minded civic leaders of Dallas. The City had suffered in 1908-11 with a record drought that was not surpassed until the 1950's. During the 1908-11 drought the City had struggled to survive the water shortages with exasperating short-term measures. A committee appointed during the early drought by Mayor S. J. Hay to study the long-term supply needs of Dallas and to "find all the water we'll ever need" (Bolding, 1981, p. 57). White Rock Lake was one result of that study. Forty years later the city was again out of water, its last major water supply, Lake Dallas, having been completed in 1928. At the beginning of the drought in 1951, the City had not added to its water supply for over twenty years. Dallas had two new supply lakes under construction, Lake Grapevine and the expansion of Lake Dallas into Lewisville Lake, but until these reservoirs were completed and filled Dallas was in the embarrassing position of wanting to grow but not having enough water.

In a sense, the 1908-11 drought history was repeated in the 1951-57 drought.

As in the 1908-11 drought, a committee was appointed: the Dallas Water Survey Committee with W. G. Vollmer as its chairman. The committee, known as the Vollmer Committee, sought the assistance of Forrest and Cotton, Inc., Consulting Engineers, in locating future reservoir sites and recommending facilities to supply Dallas with water to meet the expected demands to the year 2000. The Council Resolution of June 1, 1953, charged the Committee as follows:

> An intelligent decision on the location of future water storage sites can be arrived at only after comprehensive engineering and economic studies have been made. It is recommended that the Council appoint a Citizens' Committee consisting of a minimum of five and a maximum of seven to study the problem of future water supply for the City of Dallas and to make recommendations

to the City Council. The Mayor, City Manager, and the Superintendent of the Water Department shall be ex-officio members of this committee. The studies to be performed by the Citizens' Committee shall encompass the following:

1. The ultimate dependable, economic yield in the Elm Fork Basin.
2. Suitable locations and capacities of reservoirs to provide such yield.
3. The evaluation of supplies from other water sheds (sic) for water required beyond the yield of the Elm Fork Basin.
4. The advisable order of development of additional water supplies.

Forrest and Cotton, Inc., (1959), in the introduction to their report entitled Report on Long-Range Water Supply Study for the City of Dallas, made this observation which underscores the regional concept of the Vollmer Committee's studies:

> Before proceeding to present an analysis of the studies which have been made, it is desirable to give at this point basic policy decisions which have influenced the studies and which are recognized in the long range water plan presented herein. In the early deliberations of the Dallas Water Survey Committee, it was apparent that consideration must be given to the entire metropolitan area; that is, Dallas County. There are 29 incorporated cities and towns in Dallas County, and it is obviously impractical for each of these cities to develop an independent surface water supply to meet its long range needs. Recognizing that such independent action was impractical, and further recognizing the close relationship between the economic growth and welfare of the City of Dallas accept the responsibility for providing water supplies to all of Dallas County. The City Council approved this recommendation of the Committee and instructed that the studies include supplies of water sufficient to meet the needs of the entire county in the year 2000. As sources of water supply were studied, it also became apparent that other neighboring municipalities on the watershed above Dallas County must be considered, as their needs must also come from streams used as a common source with Dallas County (p. 4).

Forrest and Cotton, Inc. contracted with The Bureau of Business Research of the University of Texas at Austin, Texas, to prepare a study of the water needs of Dallas county to the year 2000. The regional nature of the study was not kept secret, because municipalities within Dallas County contributed heavily to the information presented in the report. This report was presented to Forrest and Cotton, Inc. and the Vollmer Committee on December 1, 1954.

The Vollmer Committee worked very diligently. A summary of their meetings for the year 1954 indicates that considerable progress had been made in planning for future water needs of the Dallas area and that steps had been taken toward implementation of their plans. The thoroughness of the Committee's research was evidenced in a printed report presented at the annual meeting of the Greater Dallas Planning Council in 1956 (Vollmer, 1956). The committee reported that

> At a meeting on February 10, 1954, possible additional sources of water supply were discussed, namely:
>
> (1) The Great Lakes (too complicated to consider).
>
> (2) The Mississippi River (not be economically feasible at present because sources nearer home were available).
>
> (3) The rivers of Arkansas (too far away for consideration at present).
>
> (4) The rivers of Oklahoma, the Red and Kiamichi Rivers, and Lake Texoma (interstate compacts need to be negotiated--the element of timing is involved with consideration of nearer sources in Texas).
>
> (5) The Sabine River (a fine source of water--has possibilities--only 48 miles from Dallas, and an Authority recognized by the State is already in existence).
>
> (6) The Sulphur River (good water; watershed is prolific; an Authority recognized by the State is already in existence).
>
> (7) The Neches River (farther away, but has possibilities).
>
> (8) The East Fork of the Trinity River (another reservoir below Lavon is practicable and should be developed).
>
> (9) Tributaries of the Elm Fork (possibility of dams near Roanoke and near Aubrey to capture more of run-off; should be developed).
>
> The committee, at the meeting, adopted certain policies guidance, viz:
>
> (1) The City of Dallas must accept responsibility for furnishing water to all of Dallas County, including municipalities and water districts therein.
>
> (2) Respecting treating plant sites, our engineers must furnish estimates, in each instance, based on two locations -- one near a reservoir and one near the City of Dallas.
>
> (3) Distribution of additional supplies of water from treating plants into City of Dallas mains not be be included in Engineers' studies.
>
> (4) Date for completing the first project of additional or new facilities was fixed for the year 1965 (p.4-5).

As a result of the projection of water needs for the Dallas area made by the Bureau of Business Research and the research into available sources of water by the Vollmer Committee, the City of Dallas entered into an agreement with the Sabine River Authority. The planned reservoir on the Sabine River, 48 miles east of Dallas, would supply a substantial part of the total water needs to the year 2000.

Construction of the dam at the Iron Bridge site on the Sabine River (Lake Tawakoni) was begun after the bond election of January 31, 1956. The bonds provided for $41 million for financial aid to the Sabine River Authority to construct the reservoir. The contract with the Authority gave 80% of the available water coming from the lake and Dallas agreed to pay 80% of the annual operating costs. The remaining 20% of the water was made available to cities within the lake's watershed. The dam was completed on October 7, 1960.

EARLY CONTRACTS, 1939 THROUGH 1959

At the onset of the drought, the City of Dallas had only two contracts to sell water wholesale. One purchaser, the Dallas County Arcadia Fresh Water Supply District No. 1, became a customer of the City of Dallas in November, 1939. The District had been organized as a governmental unit, with the power to levy taxes and to supply water to an unincorporated community in Dallas County known as Arcadia Park. Arcadia Park, which gained national attention in the 1930's as the home of the notorious Clyde Barrow, was adjacent to, and west of, the City of Cockrell Hill.

Water was served to the District through the City of Cockrell Hill system with meters on both sides of that city. Water registered on the outgoing, Arcadia Park side, was charged to the District. The Arcadia District's charges were deducted from the registration on the incoming side to arrive at the bill for Cockrell Hill. The Arcadia Park contract contained a provision that the District could take water only between midnight and 5:00 a.m. in order not to reduce the water pressure for consumers inside the City of Dallas and Cockrell Hill. The maximum amount of water the District could take daily, in effect, was limited to the capacity of its reservoirs and tanks, since very little additional water would be drawn for normal use during the early morning hours. The contract also provided for the water to be discharged into the District's tanks in such a manner as not to form a cross connection which might permit water to flow from the District's system into the Dallas-Cockrell Hill system. Only such water that was in excess of the needs of Dallas citizens was made available.

Interestingly enough, even though the contract seriously hampered the District's ability to take water, the charge per 1,000 gallons, at which water was sold reduced as the amount of water taken increased (step-down rate). This gave the District a monetary incentive to take as much water as it could. All the provisions, with the exception of rate revisions, remained in the various renewals of the contract until Arcadia Park was annexed into Dallas on June 9, 1958.

Of course, the other wholesale customer that Dallas was serving was Cockrell Hill, located south and west of Dallas on what, in 1950, was the main highway between Dallas and Fort Worth. Cockrell Hill enjoyed a rate that stepped down as consumption rose, but had no restriction on its use of water other than the "surplus water clause" which read:

> It is distinctly understood by the parties hereto that the City of Dallas owes its primary obligations and duty to furnish water and sewer service to the citizens of the City

> of Dallas, and that the City of Dallas is furnishing the service, or selling the service, under this agreement, because it presently has a surplus and expects to have a surplus of such services. This contract may be terminated by the City Council of the City of Dallas if it determines that no surplus of such services exists and that facilities available are required to supply the citizens of the City of Dallas.

The Arcadia Park and Cockrell Hills contracts both provided for changes in the step-down rates with this wording:

> In the event the City of Dallas should increase or decrease the water rates to the citizenship of Dallas, then the above schedule of rates will likewise be increased or decreased accordingly.

When the drought period began, Dallas was administering contracts containing provisions which (1) protected the Dallas system from contamination from its customers' systems, (2) delivered water at only those times of day when Dallas use was low, (3) gave the customers only such water as was surplus to the needs of Dallas residents, (4) provided that the customer city was not to resell water outside their boundaries, and (5) sold water at rates which gave the customer cities incentive to use as much water as they could. These provisions were to change gradually as the drought wore on and as execution of the Vollmer Committee's long-range plan became more of a financial burden on the Water Department of the City of Dallas.

The underlying reason for Dallas County cities' turning to the City of Dallas for water was, and is, the realization that, locally, wells are not a reliable source of water. County residents had learned in the drought of 1908-11 that wells could not be depended upon to supply all the water needed. Dallas, as noted, had developed White Rock Lake as a result of the problems with underground water arising from the 1908-11 drought. In 1950, the two communities, Cockrell Hill and Arcadia Park (District No. 1), who were receiving water from Dallas had entered into contracts with Dallas because of failing or inadequate wells.

Officials of the next two cities to obtain contracts for water with Dallas realized, no doubt, the unreliability of wells in the area. Although rainfall had been sparse for several months it is doubtful that the lack of rainfall had affected the availability of well water very much. If these cities were having difficulty at all with wells, the problem, more than likely, was due to other causes. Opportunity, in the form of the new Elm Fork Treatment Plant, located in the City of Carrollton, and the main carrying water through Carrollton and Farmers Branch to Dallas, presented itself. Neither city had to make long, expensive connections to the pipe line. Contracts with these cities, Carrollton on November 28, 1950, and Farmers Branch on January 9, 1951, were triggered by construction of Dallas facilities within their boundaries. Both cities began taking water from the main connecting the Elm Fork Treatment Plant with the City of Dallas on July 17, 1952, when that facility was completed.

The contracts with these two cities were almost identical. Both agreements ran for a period of 10 years beginning on the date that the City of Dallas notified the customers that Dallas was ready for them to take water. Both contracts provided for the sale of water only to the extent that it was surplus to the needs of Dallas's customers, and both contained provisions for the protection of the Dallas system from contamination from the customer cities' systems. However, there were no restrictions regarding the time of day that the cities could draw water from the transmission line, and the only restriction on the number and location of connections was, as in the Cockrell Hill contract, that the City of Dallas reserved the right to approve the type and location(s) of the meter(s) used to measure the "flow" of water taken from Dallas mains. The rates were set at a flat fifteen cents per 1,000 gallons rather than the step-down rates in the Cockrell Hill and Arcadia Park contracts; however, this was one cent per 1,000 gallons less than the lowest step (16¢ per 1,000 gallons) available to the older customer cities. The clause dealing with changes to that rate now provided: "that if and when the Council of the City of Dallas amends the ordinance providing water rates to its own citizens, then the rate to the City of Carrollton will be increased or decreased in the same percentage as are the rates to the citizens of Dallas..." An identical clause was included in the contract with the City of Farmers Branch.

A provision was included in these contracts which had not appeared in previous contracts with Arcadia Park and Cockrell Hill. Carrollton and Farmers Branch agreed to maintain and continue to use their wells.

The next contracting party was the City of Fruitdale, later annexed into the City of Dallas. This contract again provided for step-down rates, with the lowest step being 16 cents per 1,000 gallons. There was no major variation in this contract from the Cockrell Hill contract except the unusual wording of the rate change clause which read:

> The City of Dallas reserves the absolute right to increase or decrease the rates provided for herein at any time the Council may desire to do so, and the judgement of the City Council in connection with this matter shall be final and not subject to review by the Courts.

The first contract with the City of Richardson, signed on February 28, 1955, gave the first real indication that Dallas officials were beginning to consider the effects of the drought and the increasing costs being brought about by the implementation of the Vollmer Committee's recommendations. (1) The rates were flat and now set at 17 cents per 1,000 gallons. (2) The City of Richardson agreed to maintain its well system. (3) The contract provided that:

> The maximum rate at which water may be withdrawn from City of Dallas' main at this point is fixed as that rate, which if maintained constantly through a period of 24 hours, would provide the total quantity of water necessary to supply the sum of the maximum day requirements of the customers regularly supplied with Dallas water through the facilities of Richardson, and it is expressly agreed that the City of Dallas shall never be bound to supply water at greater than such rate.

> The City of Richardson shall provide and utilize sufficient controlled storage facilities so that it will be able to meet the peak demands of its customers without drawing on the City of Dallas at any rate in excess of the above stated rate.

Furthermore, the contract provided that the maximum rate of withdrawal for subsequent years would be increased in proportion to the number of new customers added to the Richardson system.

A new sentence (our underscore) added to the now standard sale of "surplus water" provision of the contract with Mesquite, written March 14, 1955:

> It is distinctly understood by the parties hereto that the City of Dallas owes its primary obligation and duty to furnish water to the citizens of the City of Dallas, and that, irrespective of the term of this contract, which may be expressly stated herein yet nonetheless the City of Dallas reserves the right, if it finds it necessary, to curtail the use of this water by the City of Mesquite, or disconnect it altogether in the event the City of Dallas shall need all the water it produces or treats for consumption in the City of Dallas. In the event the City of Dallas finds it necessary to temporarily restrict use of water for any reason by its own citizens, the City of Mesquite expressly agrees to enforce the same restrictions upon its own customers.

The City of Mesquite, on the east side of Dallas was (and is) a member of the North Texas Municipal Water District. At the time the contract with Dallas was drawn, Mesquite was unable to take water from the NTMWD because facilities for delivery had not been built. Mesquite was required by the contract with Dallas to limit its withdrawals to 500 gallons per minute in addition to maintaining its well system. The new requirement to ration water if Dallas did was included along with the "surplus" water provision. The contract was for one year, but it was honored without being renewed until June 15, 1959, when another contract was drawn.

Irving and Grand Prairie obtained a three-party contract with Dallas on January 17, 1955. The contract provision, except for the fact that two cities were to be served from a single connection through a line that was jointly owned by the two cities, contained only the provisions that had been written into other recent contracts. The fact that two cities were served from a line over which Dallas could not exercise control was a real hinderance to the administration of this contract. Dallas could not restrict or control the rate of withdrawal of water by either city without doing the same thing to the other city. Part of the City of Grand Prairie is in Tarrant County. Dallas officials went beyond the scope of the Vollmer Committee's recommended policy when they contracted to sell water outside Dallas County.

A provision contained in all the other contracts in effect at the time the Irving - Grand Prairie contract was signed was also in this contract. It read:

> The Cities of Irving and Grand Prairie will not make any extension of water lines beyond the City Limits of their respective cities, as their boundaries now exist, or may hereafter exist, nor permit any outside (out of the City Limits) connections for water, except for residential users, without the consent of the City of Dallas, and in that event, the rates to be charged for such service shall be determined and fixed at the time such permission may be granted, and also the compensation that will be paid to the City of Dallas for such out of the City Limits water service, and it may at the option of the City of Dallas be subject to different rates than those provided for by this contract.

The next contract, written on March 15, 1956, between Dallas and Seagoville contained the first provision for a two-part rate. The two-part provided for a minimum annual payment consisting of a capacity and a volume charge. The provision read:

"The regular rate at which water will be billed montly will be as follows:

First	1,000	Gallons	@	$1.80/1000
Next	4,000	"	@	.45/1000
"	95,000	"	@	.35/1000
"	400,000	"	@	.29/1000
"	500,000	"	@	.25/1000
"	1,000,000	"	@	.21/1000
"	1,000,000	"	@	.17/1000
All Over	3,000,000	"	@	.16/1000

> The total annual bill computed on these rates however will not be less than the mimimum cost of the capacity required to serve the maximum daily demand on the City of Dallas system in any fiscal year plus a base operating cost per 1000 gallons. Such fiscal year shall begin the 1st day of October each year. The City of Seagoville shall adjust their annual payments under the prescribed rate. The annual minimum is hereby fixed for the term of this contract and shall be computed as follows:
>
>> The maximum day's withdrawal of each fiscal year expressed in million gallons times $13,000.00 plus eleven (11¢) cents per thousand gallons the total water metered to the City of Seagoville in the fiscal year. For example - with a maximum withdrawal over 24 hours of 270,000 gallons, and a total annual consumption of 39,420,000 gallons, the minimum annual payment by the City of Seagoville would be:

$$\begin{aligned} .27 \times 13{,}000 &= \$3{,}510.00 \\ .11 \times 39{,}420 &= \underline{\$4{,}336.20} \end{aligned}$$

Annual Minimum $7,846.20

This entire provision was an alternate rate. The basic rate was 18 cents per 1,000 gallons provided Seagoville limited its withdrawals to the hours of 10:30 p.m. to 5:30 a.m. at less than 1,200 gallons a minute. The step-down rate with two-part minimum was to be applied only if withdrawals were required at other times of day. Nevertheless, the two-part rate provision was a harbinger of things to come. Dallas water officals were beginning to recognize that restrictions on the rate at which water could be withdrawn by customer cities might be difficult to enforce and that providing capacity for unrestricted withdrawals could be very expensive.

The next contract, actually a revision, was with Mesquite on June 15, 1959. Mesquite had found that the 500 gallons per minute received from Dallas simply was not enough to supplement the water Mesquite could provide for its citizens. The revision allowed Mesquite to withdraw water at a 2 million gallon per day rate (1,389 gallons per minute). In turn the City of Dallas inserted a two-part rate clause. In the Seagoville contract, the two-part rate provision was merely an alternate to the basic rate; in the Mesquite contract, the two-part rate was an annual minimum consisting of a charge of $23,725 per million gallons per day of maximum rate of withdrawal plus five cents volume charge. The alternate charge was 18.6 cents per 1,000 gallons.

Dallas was experimenting with a two-part rate. The variation between the provisions of the Seagoville and Mesquite contracts indicate that the rates were being based on estimates. Dallas needed a cost-of-service study to determine how to stabilize the rates. Although, such a study was already underway at the time of the Mesquite contract revision, it was still too early for Dallas officials to make use of any material developed by the study.

The provisions of Dallas's first contract with the Arcadia park District #1 in 1939 remained basically the same in all other contracts with customer cities until June 15, 1959. Contracts still contained provisions to protect the Dallas system from contamination, to limit customer cities' withdrawals to Dallas's off-peak hours when necessary, to sell only water "surplus" to the needs of Dallas's citizens, and to prevent resale of water outside the customer cities' boundaries. These provisions were difficult enough to enforce. But the rate provisions, which had been modified from the step-down rate in the Arcadia Park contract to a flat cents-per-1,000 gallons rates and then further modified to a two-part (capacity and volume) rate seems to have been almost impossible to fit into a uniform mold. A way had to be found to write a uniform rate provision into all the contracts with customer cities without discriminating against or in favor of any of them.

SECTION 4

THE 1959 RATE STUDY

In 1959, the Charter of the City of Dallas contained this Provision:

> Sec. 99. FUNDS NOT TO BE DIVERTED - MAY USE FOR SEWERS. - All receipts and revenues from the waterworks shall constitute a separate and sacred fund, which shall never be diverted or drawn upon for any other purpose than the extension, improvement, operation, maintenance, repair and betterment of the waterworks and water supply; provided however, that the City Council may use any surplus funds accruing from said revenues for the purposes of constructing, extending and maintaining sanitary sewer mains, laterals, disposal plants and other sewerage facilities, and the Council may appropriate or pledge such receipts and revenues for the purpose of extending, improving, operating, maintaining and bettering the waterworks plant and mains and supply, and for constructing and extending lateral sewers, and also for the purpose of discharging or retiring the indebtedness of the city that may be incurred for waterworks purposes (p. 36).

As a "sacred" fund, the Waterworks Department was similar to utilities which are operated for the benefit of stockholders in that it was paying for its own operating and capital expenditures and devoting the net revenue to the expansion and improvement of the water and sanitary sewer system. The $107,046,000 cost estimated by Forrest and Cotton, Inc. in the Long Range Water Supply for the City of Dallas was limited to the cost of the reservoirs and appurtenances needed to meet water supply requirements through the year 2000. Additional costs would be incurred in providing facilities to treat and deliver the water from these reservoirs to the Department's customers. The size of these costs made the need for financial planning quite apparent. The rates charged by the Department to its users would have to be raised, but the question of how much, to whom, and when, all remained to be answered.

THE PRELIMINARY STUDY

Soon after he received the Forrest and Cotton, Inc. report, Henry J. Graeser, Jr., Superintendent of the Dallas Water Department, selected three persons from his staff to make an inhouse cost-of-service study. Those appointed were:

Robert G. Ford, Assistant Superintendent (Business)
Dan A. Brock, Analyst and Statistician
John M. Ryan, Auditor

The study group, of which Graeser was an active participant, made a preliminary study of the Department's fiscal year October, 1956, through September, 1957, expenditures. At the time of the preliminary study, very little information was available from other water cost-of-service studies to assist the group in making the study for Dallas. The study group used some of the philosophies from other utilities such as gas and electric. But much of the philosophy of cost allocation came from the personal knowledge and observations of Graeser and Brock. The preliminary report made two points: (1) that costs should be allocated to cost-creating sources and (2) that those same costs should be allocated to customers in proportion to the costs each customer creates. The report demonstrated how this could be done using information available from the Department's 1956-57 fiscal year revenue and expenditure reports.

Costs were defined as the total expenditures (of cash) made by the Water Department Operating Fund in a stated period as a service was provided. That period was short term, one year, and the system and plant capacity was considered fixed for the period. Thus the cost per year of a unit of capacity could be determined by dividing the annual cost by the capacity available.

The preliminary study acknowledged that there were several ways to classify costs. The method which was applied recognized that costs are created by the total amount of water consumed (volume), the rate at which it is used (capacity demanded), and the cost of making service available (customer costs).

Costs associated with the use of water in various quantities at specific rates of flow were called consumption costs. These costs varied from customer to customer, each having his own pattern for using water throughout the day, month, or year. Since allocation of costs to individuals was impossible, customer groupings, which will be described later, were used. The consumption costs were further classified to three categories:

(1) Capacity costs, which consisted of hourly demanded pipeline cost, hourly demanded storage cost, and daily production and delivery pipeline costs.

(2) Commodity cost, which was defined as electrical power and chemical costs created when one unit quantity of water is produced. This cost is constant for each unit.

(3) Reservoir costs, which were defined as annual costs arising from impounding water and maintaining the reservoirs.

The capacity costs in the study are associated with consumption patterns, i.e., the manner in which water is used. The use patterns of the various customer groups revealed that (1) water demand for all the groups was heaviest in the summer, (2) if capacity were built to supply any one of these groups during its period of peak use, there would be idle capacity during the other three seasons of the year. In other words, no customer group had a perfectly level use pattern throughout the year, and (3) there was a wide variation in the use patterns of each group. This meant that each group could be readily distinguished from all the others. No two groups' use patterns were similar enough to create confusion as to which was which.

Another group of costs were identified. These were the costs of making service available, and they were defined as customer costs. They are primarily those costs which are comparable in all accounts, typified by meter reading and billing costs, local grid maintenance costs, administrative costs, etc. Additionally, these customer costs include fire hydrant and a portion of pipeline costs which are basically fire protection costs. Because of the relatively great pumping capacity maintained to meet water peaking demands in the city, in general only some grid and all hydrant costs were labeled fire protection costs.

Consumption costs were then allocated to customer groups according to the amount of water each group used (volume) and their use patterns (demanded Capacity). Customers costs were allocated to customer groups based on the number of customers served.

Cost, having been defined as the total expenditures made by the Department, unlike stockholder-owned public utilities, was on the cash basis of accounting. With the exception of a few year-end obligations, expenses were recorded at the time a cash outlay was made. There was no recording of non-cash expenses, such as depreciation. Non-cash expenses, therefore, were not considered to be a part of costs in this study even though they are quite appropriately considered to be costs in other accounting systems. On the other hand, all cash outlays, plus year-end obligations, were treated as expenses of the year in which they were made. Thus, in this study annually recurring outlays for assets with a useful life beyond the year in which they were acquired, i.e. capital assets, were included as expenses. Also, outlays for the repayment of bonds were treated as expenses.

Atypical or unusual expenditures were removed from consideration, as were reimbursed transfers of funds. For this reason, amounts spent from the operating fund which were to be reimbursed later from a bond fund were eliminated because this was merely a transfer, and expenditures for pumping Red River water was removed because it was an unusual, non-recurring expenditure.

Customer groups were selected largely from billing information and consumption pattern information. Before identifying the groups it is important to review the groupings that were considered, since, logically, there are bases for using other customer groupings. Other grouping criteria were later explored in some detail during the rate hearings in the 1970's. Costs were allocated to groups of customers rather than individual customers.

Equitably the burden of peaking capacity cost should be borne by the customers who make use of the peaking capacty in proportion to the extent that they use it. However, it was not economically possible to ascertain demand patterns of small customers. The cost of meters to provide demand pattern information limits application to only those customers using large amounts of water.

Because of this consideration, allocation of water service costs into classes or customers was necessary. Three bases for grouping customers into classes were considered before customer groups were defined.

First, customers differ in respect to their location relative to facilities. Certainly, in some locations water service can be provided somewhat cheaper than in others because of length of line, re-pumping, etc. Within the customer class, if a cost credit were granted to one customer because of location, it follows that in order to meet the costs appropriate to the customer class, customers with unfavorable locations must be awarded a cost penalty. Also, a multitude of cost schedules would develop if all locations were to be considered. Therefore, location of the customer as a factor in cost allocation appeared impractical.

The second basis of customer grouping considered was length of time connected to the system. Older customers occasionally express the thought they they have "paid for" facilities serving them and that none of the costs attendant to current and future system expansion should be allocated to them. But these older customers were never buying a vested interest in the water system as they paid their water bills through the years. Rather, they were paying for a service as it was provided - paying at a minimal breakeven rate, at that.

The third basis of customer grouping considered was consumption pattern. As noted before, consumption pattern is related to use of capacity, and idle capacity represents a large cost in waterworks operation. It was also noted that consumption pattern information for individual accounts was very meager, being available for less than 200 out of 165,000 accounts. Therefore, if consumption pattern information were to be used at all, what was available would be used, and information was available for groupings of customers.

Available data grouped customers in three ways - by locality, by type of customer (occupancy code and/or billing rate), and by size of meter. Locality and length of time served where dismissed as criteria for allocating costs. Size of meter data consisted only of numbers of accounts with different size meters, but consumption information by size of meter was not available. Therefore, occupancy code and billing rate information was used because the data was available and this means of grouping was more manageable than grouping by location and length of service.

Five classes of water customer service were selected as being most representative:

1. Residential or Domestic Service. Residential service embraced the customers taking service at single-family or duplex buildings.

2. Commercial Service. All consumption not allocated to the four other classes here listed was placed in the commercial service class.

3. Industrial Service. Industrial service contained all customers being billed on the then industrial water rate.

4. Yard Service. Yard service consisted of those customers who had a separate meter installed and billed for lawn irrigation purposes.

5. Customer Cities. Cities being supplied water by Dallas were categorized as customer cities.

THE 1959 RATE STUDY

The 1959 rate study was an expansion of the preliminary study. Costs were forecast for eleven years, 1960 through 1970, in great detail, using inflation indices that seemed appropriate for each cateogry of cost. For instance, wages were projected to increase 3.4%, not compounded, per year; the general price index was increased 1.2%; and electricity was estimated to increase 1.9% per year. While authoritative sources were used for all indices, the rate study committee had no illusions that each item would follow the forecasts perfectly. They felt that compensating errors would exist. The hope was that rates based on the forecasts would be adequate for ten years. They were.

The rate study drew heavily from two sources, the long-range water supply study finished that year by Forrest and Cotton, Inc., and the population growth and water use study made by the University of Texas Bureau of Business Research. The rate study itself contained no text, only schedules. The 60 schedules were carefully indexed and cross-referenced so that an item of cost could be traced from the original estimate to its final allocation to each customer class. Table 3 (p. 28) summarizes and compares the results of the preliminary study with the results of the rate study.

While this study was prepared, as noted earlier, to extend the preliminary study to the 1960-70 period of years, a few variations were made in the interest of practicalities. The preliminary study considered yard sprinkler services a separate class of customer, because the use pattern of customers who had separate connections for sprinkler systems was very distinguishable from the use patterns of other types of customers. Typically, the sprinkler systems use water at a very high rate for a short period. If this load were to be translated into cost per 1,000 gallons, the result would be extremely high rates for a relatively few customers. Those customers were not likely to understand why they were being singled out for an enormous increase whereas previously, customers with separate connections for sprinklers had a price advantage. Before the drought, the City of Dallas had "summer rates". Water usage in excess of a predetermined amount was billed at reduced rates during the summer months to encourage maintenance of green and beautiful residential areas. The separate connection, which obviously was for the purpose of putting water into the ground, did not introduce additional sewage into the sewage system. Therefore, a customer who had a separate lawn sprinkler connection was not billed for sewer service based on water delivered through that connection. The service could be discontinued for the fall, winter, and spring, allowing the resident to escape even minimum bills for as many as nine months out of the year. Drawing water through a large connection allowed the added convenience of being able to sprinkle an entire lawn in a few minutes. Since there was a very large gap between the existing rates and one that would recover costs, the rate committee combined sprinkler accounts with other residential coustomers for the time being and looked for ways to gradually break the news to customers with yard sprinklers.

Another quite obvious variation from the preliminary study was the omission of hourly pipeline and storage costs from the Customer Cities allocation. The reasoning here was that it was not practicable for Dallas to undertake to furnish the peak hour needs of other cities. The cities covered

TABLE 3. SUMMARY OF COST PER 1,000 GALLONS OF WATER BILLED

	Preliminary Study 1956-57 FY					Rate Study, 1960 - 1970			
	Residential	Commercial	Industrial	Yard Service	Cities	Residential	Commerical	Industrial	Cities
Hourly Capacity:									
Pipeline	$ .008	$ .004	$ .003	$ .106	$ .013	$ .014	$ .004	$ .003	-
Storage	.002	.002	.002	.015	.007	.017	0.12	.011	-
Total Hourly	.010	.006	.005	.121	.020	.031	0.16	.014	-
Daily Capacity	.107	.086	.071	.220	.179	.162	.124	.103	.141
Reservoir	.022	.022	.022	.022	.022	.070	.070	.070	.068
Commodity	.034	.034	.034	.034	.034	.046	.046	.046	.045
TotalConsumption Cost	.173	.148	.132	.397	.255	.309	.256	.233	.254

too large an area for Dallas's peaking facilities to produce uniformly good results. The low pressures that would result could create unsafe conditions, such as an inability to deliver water during a fire. Dallas could not monitor the cities' elevated tanks either. The end result was that Dallas did not allocate hourly capacity to customer cities, because there was simply no way the Dallas system could supply the customer cities' peak hour loads. This point had been recognized in contracts written since 1955 with Richardson, Mesquite, Irving-Grand Prairie, and Seagoville.

Costs, not rates, were the objectives of this study. Costs would provide a point of departure for the rate-making process so that those whose privilege or duty involved the process could exercise political, economic, social or whatever kind of judgement they desired to employ. The study group did not suggest, by any means, that their cost findings should be ignored in the rate-making process. They proposed that the cost findings were to serve as a benchmark for rates with reasonable variations from unit costs being permissable. In any event, when rates were finally set, all costs had to be recovered by those rates. Costs were never to be omitted or allocated off the page in assigning rates to customer groups.

It is interesting to note that, in the preliminary study, Table 3, p. 28) daily capacity costs to customer cities were $.179 (17.9 cents) per 1,000 gallons, over twice the cost of delivering water to the commercial class of customers, whereas, in the rate study, the customer cities' cost per 1,000 gallons had dropped to $.141 per 1,000 gallons and the commerical class had risen to $.124 per 1,000 gallons. This was due to the fact that consumption for the customer cities was projected to rise much faster than the commercial class of customer, or any other customer class with the City of Dallas. In 1956-57, customer cities were using less than 3% of the water produced by the Dallas system, whereas, in the 1959 rate study, customer cities' use of water during the next ten years was projected at 17.1% of the total water to be sold by Dallas.

Notice also that the 1,000 gallon unit of cost for reservoir and commodity costs are equal for all customer classes in the 1956-57 fiscal year, $.022 and $.034, respectively. In the rate study the cost for the same items of cost were $.068 and $.045 for customer cities. This resulted from the particular method used in the rate study for computing the unit costs. First, total costs were split between the inside-Dallas customer groups and the customer cities. Then the total cost allocated to the inside-Dallas customer was divided by the total water expected to be used by the inside customers to arrive at the per 1,000 gallons cost. The total cost allocated to the cities was, likewise, divided by the total water estimated to be used by customer cities. Because system losses of water was expected to be less for customer cities, a larger percentage of water produced was deemed to be available to the cities than to inside-Dallas customers: 86.7% vs. 84.77%. This gave a lower unit cost for the customer cities since their total cost was spread over relatively more water. The metering and system loss allocation later became a contested subject.

By-products of the rate study were very useful in formulating Department decisions and in negotiation and administration of contracts with the county cities. The cash position forecast, made after the new rates had been proposed, became a financial planning tool. A look at an extract from that forecast (Table 4, p. 31) shows that planning was needed for the Department to get by on the proposed rates. This schedule was later expanded to include other computations, and a computer program was written so that various financial schemes could be tested quickly.

Other schedules proved useful as building blocks for negotiating rates. The following computation was made from the rate schedules to determine the Daily Capacity Charge found in post-1960 contracts with customer cities:

Sch. 204 - Total billed consumption for eleven years 81.45 B.G.

$$\text{Average use per day} = \frac{81.45 \text{ B.G.}}{365 \times 11} = 202.86 \text{ M.G.}$$

Sum of peak days = 202.86 M.G. x 2.25 (ratio of peak to average) x 11 = 502 M.G.

Sch. 540 - Total cost of Daily Capacity of 11 years = $11,523,751

$$\text{Cost per M.G.} = \frac{\$11,523,751}{502} = \$22,950$$

B.G. = Billion gallons
M.G. = Million gallons

The cost per 1,000 gallons of Reservoir and Commodity expenses allocated to cities on Table 3 were totaled ($.068 and $0.45, respectively) to arrive at a charge of $.113 per 1,000 gallons of water used. This became the "volume" charge found in subsequent contracts with the county cities.

From these two computations the effective rate per 1,000 gallons could be derived for any known ratio of maximum day to average day use. The ratio of maximum day use to average day use became what the Dallas Water Department personnel termed "load factor". Thus a 2:1 load factor was the result of a 2 million gallon withdrawal on the day of maximum use and 365 million gallons total volume taken during a year. The load factor resulting in the lowest cost per 1,000 gallons was 1:1, i.e., a perfectly level rate of withdrawal. The cost per 1,000 gallons with that load factor was:

Daily capacity charge: 1 M.G. (maximum day withdrawal) x $22,950	$22,950
Volume charge: 1 M.G. (average withdrawal for 365 days) x 365 x $113 ($.113 per 1,000 gallons)	41,245
Total annual charge	$64,195
Cost per 1,000 gallons ($\frac{\$64,195}{365,000}$)	17.6¢

TABLE 4. ESTIMATED CASH POSITION WITH PROPOSED RATES

1960-1970

	RECEIPTS	DISBURSEMENTS	CASH INCREASE (DECREASE) ANNUALLY	CASH INCREASE (DECREASE) CUMULATIVE
1960	$ 17,030,754	$ 16,309,148	$ 721,606	$ 721,606
1961	19,296,778	17,807,146	1,489,632	2,211,238
1962	20,260,948	19,777,858	483,090	2,694,328
1963	21,299,922	21,636,718	(336,796)	2,357,532
1964	22,340,876	23,081,040	(740,164)	1,617,368
1965	23,614,504	24,356,329	(741,825)	875,543
1966	24,727,905	25,430,033	(702,128)	173,415
1967	25,777,887	26,250,109	(472,222)	(298,807)
1968	26,908,320	27,006,573	(98,253)	(397,060)
1969	27,999,075	27,849,733	149,342	(247,718)
1970	29,216,343	28,469,423	746,920	499,202
	$ 258,473,312	$ 257,974,100	$ 499,202	

Reversing the computation, the cities' load factor on Table 3 which resulted in 25.4 cents per 1,000 gallons, was 2.24:1.

The computation was useful in preparing a table of cost per 1,000 gallons of water taken by cities at various load factors. During contract negotiations, the table was used to apprise the customer cities of the extent that water use management could reduce their per 1,000 gallons cost of water. Rounded to the nearest cent the costs were:

Load Factor Maximum:Average	Cost/1,000 (cents) gallons
1.00:1	18
1.50:1	21
2.00:1	24
2.25:1	25
2.50:1	27
2.75:1	29
3.00:1	30
3.50:1	31
4.00:1	37

Applying 25.4 cents per thousand gallons as the rate to be charged customer cities would not necessarily have been fair to all the cities. For several reasons, the load factor of each of the cities varied from those of the other cities. Some of the cities were almost entirely residential communities. They had load factors similar to the residential group of customers. Some were almost entirely commercial centers, with relatively few residences. They had a load factor different from the residential communities. About half of the cities had storage facilities which could

enable them to reduce their load factor. Since a single rate would not necessarily be fair to each of them, the demand rate devised as a result of the rate study seemed to be a way to give the customer cities "a fair charge based on the cost of service" (Graeser, Note 1).

As a practical matter, though, the two-part demand-volume rate could not be applied immediately. The metering stations through which cities received water were not equipped with devices to measure the rate at which water was being withdrawn. None of the cities except Mesquite and Seagoville had rate-of-flow controllers to protect either the City of Dallas or the customer cities from having water withdrawn at very high rates during periods of peak demand. There were other problems, too. Irving and Grand Prairie were both being served from the same connection at Field Circle in Dallas through a common pipe line. Grand Prairie was at the end of that line, and had only that capacity which was not taken by Irving. In view of all of these problems Graeser apprised the customer cities on the demand-volume rate, pointing to the unit cost of water that could be obtained by controlling the maximum rate at which water was taken. But he was constrained to offer water at 25 cents per 1,000 gallons. The change-over to demand-volume rates was made later, mostly through new contracts and renewals of expiring contracts.

CONTRACTS WRITTEN AFTER THE 1959 RATE STUDY

At the time the 1959 rate study was completed, Dallas had eight contracts with county cities in effect. Arcadia Park had been annexed. The remaining cities were Cockrell Hill, Carrollton, Farmers Branch, Fruitdale, Richardson, Mesquite, Irving and Grand Prairie (one contract) and Seagoville.

The first contract written with the new demand-volume rate was put into effect on April 14, 1960, when the City of Mesquite asked for a new connection to the Dallas system. The rate was taken directly from the computations illustrated previously: $22,950 for each million gallons per day rate of flow on the date of maximum withdrawal plus 11.3 cents per 1,000 gallons received. This was an annual computation, with monthly bills to be based on 25 cents per 1,000 gallons. At the end of the year, total billings were compared with the computation based on the demand-volume rate and an additional billing or refund was made in order to adjust the total bill to the demand-volume rate.

A total of 26 contracts and contract renewals were written between the time the 1959 rate study was completed, and April 30, 1973, when the City of Farmers Branch asked the Texas Water Rights Commission to hear complaints about Dallas rates and conditions of service. During that time, several important changes took place in the provisions contained in the wholesale contracts.

On July 29, 1963, the clause in the Duncanville contract providing for changes in the rates to be charged to the cities was changed to read

> In the event that rates to the citizens of Dallas are increased or decreased in this period, the charge for water service under this contract shall be reviewed and adjusted in the same manner and on the same basis as the adjustment of rates for the citizens of Dallas is computed.

The clause was intended to make possible changes in rates to cities in a different percentage than those that might be applicable to customers within the City of Dallas. The 1959 rate study had brought about recognition that the cost to serve any class of customers could change independent of each of the other classes. A look at Table 3, comparing rates derived for two different periods of time shows, for instance, that the cost to serve customer cities had remained virtually the same, while the cost to customers inside the city had increased considerably for each class.

The contract with the City of Hutchins, dated May 25, 1970, contained the first "ratchet" clause. This clause:

> Once an increased rate-of-flow setting has been established, the charge for such increase to the rate-of-flow setting shall be added, without proration, to the minimum for the then current year and each subsequent year until a larger rate-of-flow is established.

If the City of Dallas was to continue to build capacity for the cities, its Water Department officials felt there should be some assurance that the capacity should be paid for each year. Rather than assign capacity based on estimates to each of the cities, it seemed better to assign those costs by allocating it as it was used. The provision gave a disincentive for cities to use the Dallas system for hourly peaking, since the peak rate of flow, whether used all day long or for a shorter period to time, was then the basis for determining the annual demand charge. For reasons previously mentioned the officials of the Dallas Water Department did not believe that Dallas could accept responsibility for supplying heavy hourly demands.

The next major change was written into the DeSoto contract on January 24, 1972. The clause providing for changes to the rates to be charged was now written:

> ...Such revised rates and Minimum Charge will be based on the forecast and actual cost to the City of Dallas for supplying water to the City of De Soto and other City of Dallas public entity customers, including a reasonable return. Such costs will be affected by projections of the growth potential of the areas to be provided water service by the City of Dallas. The cost to the City of Dallas will include all costs to secure, treat, transport, and deliver water to the City of De Soto and other Dallas public entity customers, including but not restricted to costs of land, structures, facilities, equipment, operation, maintenance, administration, engineering, legal and other professional services, depreciation on capital items, return, and all costs reasonably necessary for a water supply project to become operational and to deliver water to the City of Dallas and other public entity customers...

The cost of providing capacity for serving customers outside the City of Dallas was becoming quite heavy. The bond ordinances under which the Dallas Water Department issued its bonds required that, before bonds could be sold, the net revenues, after deducting operating expenses, must be equal to at least one and one-half times the maximum principal and interest payments due in any subsequent year, including payments for the bonds to be issued. In the case of De Soto an extension of transmission lines to serve that city was needed. The revenues from that contract were not likely to produce net revenues sufficient to fulfill the ordinance requirement. "Coverage", as the requirement was called, would be reduced if bonds were issued to pay for the extension. Because the extension would begin well within the Dallas city limits, it could be used later to serve within the city and to strengthen the transmission system. Therefore, the line was to be owned by the City of Dallas. De Soto was asked to pay for the new main, and Dallas would repay De Soto, with interest, by means of refunds based on capacity or demand charges made to De Soto.

The De Soto transmission line was not the only main extension pending. Soon after that contract was written, extensions were made to Woodland Hills, Duncanville and Cedar Hill. Then a main was built from the Elm Fork Treatment Plant to the new Dallas/Fort Worth Airport serving Flower Mound, Coppell and Irving as well. All these contracts, with the exceptions of Woodland Hills and Coppell, contained financing provisions similar to the De Soto contract.

The City of Dallas was becoming confident of its ability to supply the needs of its customers. The addition of supply reservoirs at Iron Bridge, (Lake Tawakoni) and Forney (Lake Ray Hubbard), enabled the City of Dallas to drop the "surplus" water provision from all its new contracts beginning with the Hutchins contract in 1970. Rate-of-withdrawal restrictions were now limited only to the capacity of the pipe line serving the customer cities or to the rate at which the cities asked to be set on the rate-of-flow controllers. The De Soto contract marked the beginning of contracts written with thirty-year terms.

TABLE 5. WHOLESALE CONTRACTS 1960-1973

	Date	Expiration Date	Surplus Water	Withdrawal Restrictions	Rate Type	Rate Changes	Comments
Mesquite	4/18/60	Date water available from NTMWD	Yes	Up to 3 mgd	Demand-Volume	No provisions	
Farmers Branch	12/31/62	7/17/72	Yes	None	Demand-Volume	Same % as Dallas	
Farmers Branch	3/15/63	7/17/72	Yes	None	Dallas Residential		To serve a special area
Duncanville	7/29/63	7/29/73	Yes	None	Demand-Volume with Ratchet	Same manner and basis as Dallas	
Lancaster	2/10/64	11/1/74	Yes	None	1st 2-yrs 33¢/1,000 Demand-Volume with Ratchet	Same manner and basis as Dallas	
Seagoville	10/1/65	3/15/76	Yes	Up to 400 g.p.m.	Demand-Volume	Same % as Dallas	Change to 24 hours withdrawal upon request
DCWCID#6 (Balch Springs)	6/12/67	8/10/77	Yes	None	Demand-Volume w/min of $21,645 for 90 m.g.	Same manner and basis as Dallas	
DCWCID#7 (Kleberg)	6/10/68	4/6/80	Yes		$286/mo for 866,000 gallons plus 35¢/1,000 over 866,000 to 7.5 m.g. Over 7.5 m.g. at demand-volume	Same manner and basis as Dallas	

TABLE 5. (Cont'd)

	Date	Expiration Date	Surplus Water	Withdrawal Restrictions	Rate Type	Rate Changes	Comments
Irving	5/17/72	10/25/03	No	Capacity of pipelines	Demand-Volume	At option of Dallas using utility basis	Irving paid for pipeline. Dallas to reimburse from bills. Additional contract
Duncanville	5/17/72	1/1/03	No	Capacity of pipelines	Demand-Volume	To utility basis at option of Dallas	Duncanville paid for pipeline to be reimbursed from Dallas' bills. Previous contract terminated
Woodland Hills	5/17/72	1/1/03	No	Capacity of pipelines	w/minimum set at 11.42% of the pipeline cost	To utility basis at option of Dallas	Dallas paid for pipeline. Being reimbursed by De Soto
Flower Mound	5/22/72	1/1/03	No	Capacity of pipelines	40¢/1,000 up to 1 m.g.d. Demand-Volume once 1 mgd is reached	To utility basis at option of Dallas	Flower Mound paid for pipeline to be reimbursed by Dallas
D/FW Airport	6/5/72	1/1/03	No	Capacity of pipelines	Demand-Volume	To utility basis at option of Dallas	Dallas and Ft. Worth were joint suppliers
Carrollton	7/17/72	7/17/02	No	Carrollton to discontinue use of five lines for supply	Demand-Volume	To utility basis at option of Dallas	

TABLE 5 (Cont'd)

	Date	Expiration Date	Surplus Water	Withdrawal Restrictions	Rate Type	Rate Changes	Comments
Richardson	11/17/69	1975	Yes	Min. 4.72 mgd max 12 mgd Maintain at 2.54:1	Flat 25¢ per 1,000 gallons. Reevaluated to 50¢ 2/1/69	Same % as Dallas	
Addison	10/27/69	10/27/69	Yes	None	Min. $757.32/40 for 1.2 m.g. Over 1.2 m.g. @ 40¢/1,000 to 15 m.g. renegoiate rate.	Same manner and basis as Dallas	
Hutchins	5/25/70	5/25/80	No	None	Demand-Volume	Same manner and basis as Dallas	Rates were $27,540/mgd plus $.1356/1,000 gallons
Cockrell Hill	11/9/70	9/1/71	Yes	None			One-year extension
Cockrell Hill	9/7/71	9/1/72	Yes	None			One-year extension
De Soto	1/24/72		No	None	Demand-Volume	At Dallas' option w/6 mos. notice, using utility method	De Soto build pipeline. Dallas to reimburse from water bills.
Lewisville	11/24/72	1/1/02			Flat 10.5¢/ 1,000 with escalating minimum	At Dallas' option	Raw water from Lake Lewisville
Cedar Hill	5/17/72	7/1/05	No	Capacity of pipe line	Demand-Volume	To utility basis at option of Dallas	Cedar Hill paid for pipeline. To be reimbursed from water bills.

TABLE 5. (Cont'd)

	Date	Expiration Date	Surplus Water	Withdrawal Restrictions	Rate Type	Rate Changes	Comments
Coppell-TRA	7/17/72	12/31/02	No	None	Demand-Volume with minimum demand at 11.42% of pipeline costs	To utility basis at option of Dallas	Dallas paid for pipeline
Farmers Branch	8/14/72	1/17/73	Yes	None	Demand-Volume	Same percent as Dallas	6-month extension
DCWCID#6	9/25/72	9/25/02	No	None	Demand-Volume	To utility basis at option of Dallas	
Farmers Branch	2/5/73	5/1/73	No	None	Demand-Volume	Same percent as Dallas	Extension

SECTION 5

THE FIRST RATE CASE

GENERAL COMMENTS

The legal, legislative and community actions of the first and second rate cases became quite widespread and complicated. For the purpose of simplification, these actions are discussed a topic at a time. To do otherwises would cause readers to lose any trend of thought they may be trying to follow. During the years 1973 through 1977, action was heaviest with events creating other actions which in turn brought about reactions at a mind-boggling rate. Figure 3, page 40, illustrates some of the major actions and reactions that occurred.

Figure 4, page 45, Dallas Area shows the communities in the Dallas region. Only Garland, Rowlett, Mesquite, Sunnyvale, Wilmer, University Park and Highland Park were not swept up in the water rate controversy. Wilmer, University Park, Highland Park and, to some extent, Cockrell Hill, Garland, Mesquite and Richardson were involved in a regional sewer system dispute with Dallas at the time of the water rate controversy.

LEGAL ACTIONS

The rate controversy actually began when Dallas began to set charges to customer cities based on the results of the 1959 rate study. Graeser notified the cities of the proposed new rates at the time Dallas passed its rate ordinance for its own residents. As noted earlier, he offered a flat charge of twenty-five cents per one thousand gallons or the "demand plus volume" rate. The then City Manager of Grand Prairie, L. M. Crow, Jr., wrote to Graeser on January 7, 1960:

> I acknowledge receipt of your letter December 29, 1959, pertaining to the proposed increase in water rates for the City of Grand Prairie for water used from the Dallas System. In order to better apprise ourselves of the various rate possibilities it would be appreciated if you would forward me a copy of your water rate ordinance along with a copy of the recent rate study report on which it was based.
>
> Due to the inadequacy of the information we now have it is not possible for us to determine the best or most economically feasible method of consummating this agreement. I

Figure 3. Action - Reaction Time Chart

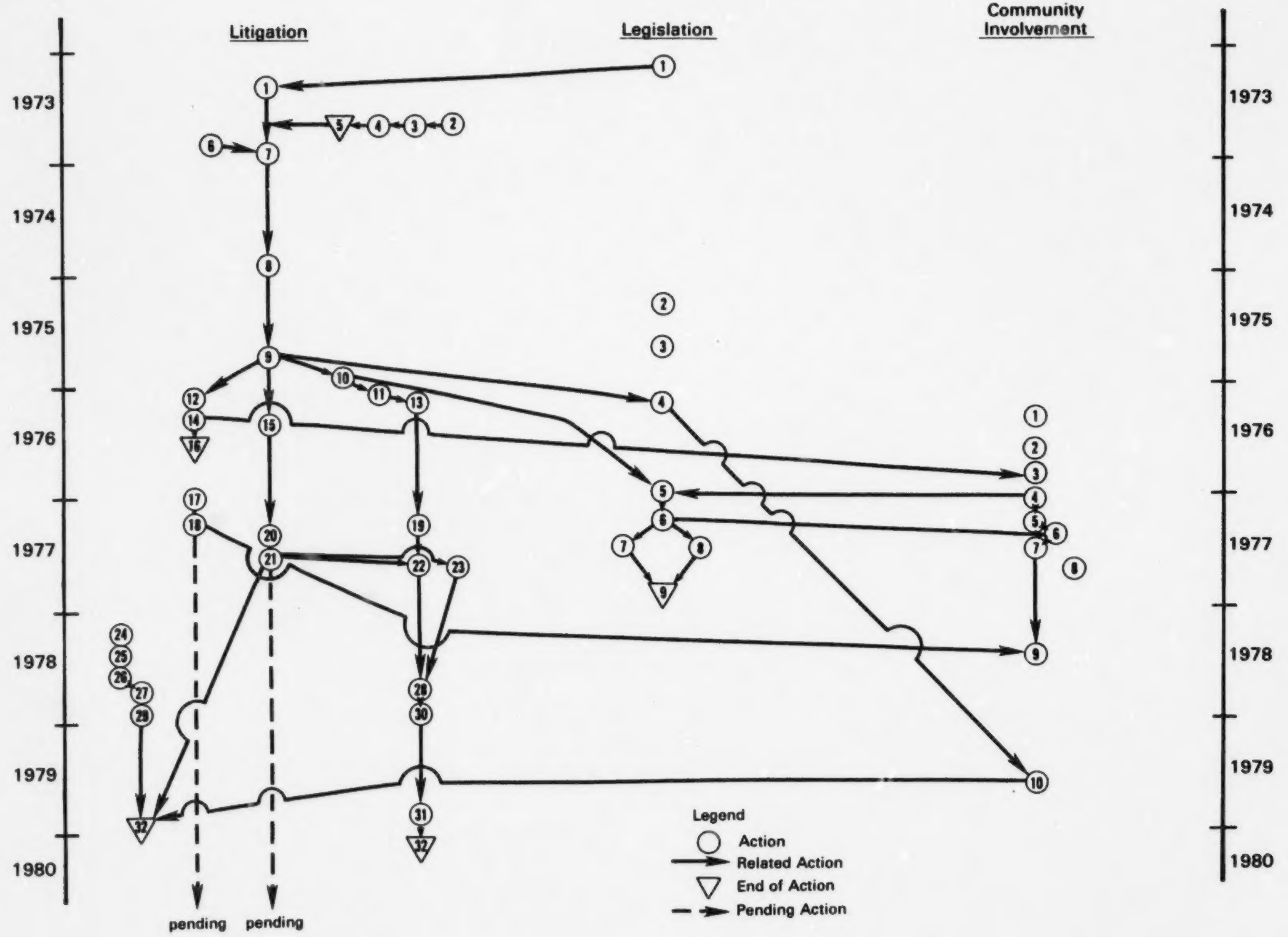

Litigation
Legislation
Community Involvement
1973
1974
1975
1976
1977
1978
1979
1980
pending
pending
Legend
Action
Related Action
End of Action
Pending Action

FIGURE 3 (Cont'd)

LITIGATION

1. 4-30-73 Farmers Branch files a petition with the Texas Water Rights Commission
2. 8-13-73 Farmers Branch increases rate of flow at metering station
3. 8-13-73 Dallas returns the rate of flow to prior setting
4. 8-14-73 Farmers Branch again increases the rate of flow, posts an armed guard at metering station, petitions 68th District Court for an injunction
5. 8-28-73 Dallas agrees to serve Farmers Branch; Farmers Branch agrees to pay Dallas. Farmers Branch drops request for an injunction
6. 10-9-73 Grand Prairie joins Farmers Branch as intervenor
7. 12-4-73 Testimony begins
8. 11-1-74 Testimony ends
9. 9-18-75 Hearing examiners announce their recommendations
10. 12-16-75 Dallas petitions TWRC to find itself without jurisdiction
11. 2-9-76 TWRC finds that it has jurisdiction
12. 2-19-76 Lake Aubrey hearings begin
13. 2-22-76 Dallas takes jurisdication question to 53rd Court
14. 3-17-76 Small cities attempt to remove Dallas for sponsor for Aubrey
15. 3-26-76 Examiners file Proposal for Decision
16. 5-19-76 Small cities go to the Water Development Board for funds and are turned down Aubrey hearings over. Dallas is named sponsor
17. 1-13-77 Dallas increases rate to customer cities temporarily
18. 2-4-77 Farmers Branches files second rate case with TWRC
19. 3-5-77 Attorney general files TWRC defense

FIGURE 3. (Cont'd)

20.	4-6-77	TWRC final order
21.	5-7-77	Both the defendant and plaintiffs ask for a rehearing
22.	8-4-77	Dallas appeals to 53rd District Court
23.	8-4-77	Farmers Branch appeals to 200th District Court
24.	11-14-77	53rd District Court rules that TWRC has no jurisdiction. Farmers Branch case in 200th District had been consolidated with Dallas case
25.	3-29-78	Dallas passes a permanent rate ordinance
26.	4-28-78	Grand Prairie files a petition with TWRC
27.	6-19-78	TWRC makes all customer cities parties to the 2nd rate case
28.	6-23-78	Irving asks not to be named as a party
29.	11-22-78	TWRC denies Irving's petition
30.	11-28-78	TWRC appeals 53rd District's decision to 3rd Court of Civil Appeals
31.	12-5-79	3rd Court of Civil Appeals rules that TWRC has jurisdiction
32.	12-17-79	Settlement
33.	1-2-80	Supreme Court of Texas refused to hear an appeal of the jurisdiction question

FIGURE 3. (Cont'd)

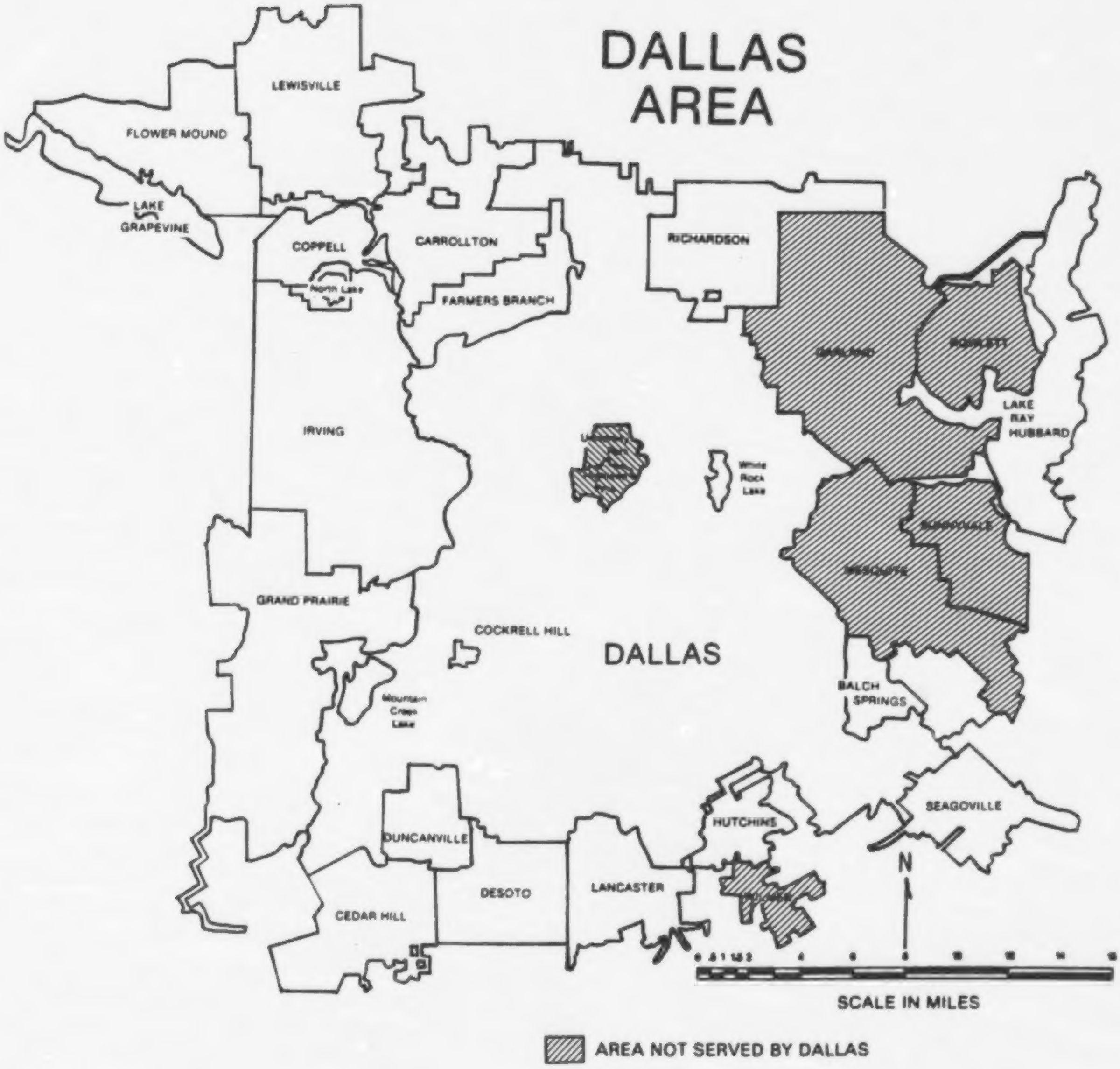
LEGISLATIVE

1. 2-6-75 Vecchio Bill introduced into Texas Legislature. Does not pass
2. 4-28-75 Dallas City Council passes an ordinance stating its bases for serving customer cities
3. 9-1-75 Texas Public Utilities Regulatory Act becomes effective
4. 2-25-76 Dallas passes an ordinance leasing construction of facilities to serve customer cities
5. 1-4-77 Customer cities propose hiring lobbyist - consultants to introduce legislation
6. 3-15-77 Customer cities hire lobbyists
7. 3-23-77 Paveto bill introduced into Texas Legislature
8. 3-29-77 Blaton bill introducted into Texas Legislature
9. 5-10-77 Blanton bill is passed

FIGURE 3. (Cont'd)

COMMUNITY INVOLVEMENT

1.	4-18-76	Dallas announces it will present its case to the newspapers.
2.	7-15-76	Community leaders support litigants by attending a meeting of the Texas Water Rights Commission
3.	11-17-76	Texas Municipal League refuses to adopt a resolution prepared by customer cities
4.	1-4-77	Representatives of customer cities attend a meeting of the Carrollton, Texas, city council to discuss involvement in the controversy
5.	3-15-77	Customer cities announce that their Chambers of Commerce will pay one-half the fee of lobbyists to obtain legislation
6.	3-23-77	Suburban leaders attend Texas Legislative subcommittee hearings
7.	4-20-77	Lobbyists for legislature backed by customer cities urges public to write State Senators
8.	7-12-77	Flyers distributed in DeSoto, Texas, announcing water rationing, blaming Dallas
9.	5-3-78	Committee for Fair Water Rates appoints consultants to assist in the second rate case
10.	July 79	Dallas Federation of Chambers of commerce maps strategy for resolving rate controversies


DALLAS AREA
LEWISVILLE
FLOWER MOUND
LAKE GRAPEVINE
COPPELL
North Lake
CARROLLTON
FARMERS BRANCH
RICHARDSON
GARLAND
ROWLETT
LAKE RAY HUBBARD
IRVING
White Rock Lake
SUNNYVALE
MESQUITE
GRAND PRAIRIE
COCKRELL HILL
DALLAS
Mountain Creek Lake
BALCH SPRINGS
SEAGOVILLE
HUTCHINS
DUNCANVILLE
CEDAR HILL
DESOTO
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N
0 .5 1 1.5 2 4 6 8 10 12 14 16
SCALE IN MILES
AREA NOT SERVED BY DALLAS

Figure 4. Dallas Area

> think it proper that payments made by the City of Grand Prairie under the revised rate policy shall be made under legal protest with the express stipulation that the City of Grand Prairie in no way waives any of its rights existing under the present contract with the City of Dallas.
>
> Of course, it is to the mutual advantage of both cities that this problem be resolved. This we will strive to do as soon as possible.
>
> Thank you for your cooperation.

The city of Grand Prairie opted to continue paying on the flat volume charge of twenty-five cents per one thousand gallons of water used.

During the interim between the 1959 rate study and April 30, 1974, when Grand Prairie filed a petition with the Texas Water Rights Commission protesting Dallas' rates, negotiations for a revised contract were attempted. At one of the sessions, according to Graeser, the City Manager of Grand Prairie, then Mr. Clifford Johnson, suggested that Dallas should use the utility basis for determining revenue requirements rather than the cash basis used in the 1959 rate study. This led to a study by Black & Veatch, Consulting Engineers.

The Black & Veatch study was completed on February 24, 1972. While the study was not a rate or cost-of-service study per se, it found that:

> The cost of providing wholesale water service, developed on the utility basis for the fiscal year ending September 30, 1969, is estimated to total $3,348,000. This cost is approximately 49 percent greater than the estimated wholesale service revenues under present rates (page C).

On January 1, 1972, a month before the report was officially presented, the City of Dallas began writing provisions that would permit the utility basis of rate determination into their contracts. (See Table 5, DeSoto Contract).

Negotiations between Dallas and Farmers Branch were also taking place, but the bargainers were having very little success. Finally, when the contract expired on July 17, 1972, and they were still unable to reach an agreement, the parties decided to extend the original contract for another six months to January 16, 1973. It was renewed once more to May 1, 1973. Thereafter, Farmers Branch was to assert that it was being served without a contract, a condition that was to be noted several times in the hearings before the Texas Water Rights Commission and the subsequent court appeals of the rate case.

The positions taken by Farmers Branch and Dallas in negotiations are simple to state, but they were poles apart. Consultants for Farmers Branch had prepared a study of Dallas water costs and had arrived at a proposed price of ten cents per one thousand gallons of water. Farmers Branch officials were asking for a formula whereby rate changes would be computed in the future. The City of Dallas was offering its then standard contract which removed the surplus water clause by giving customer cities the same supply reliability provided the City of Dallas. The proffered contract proposed changes based on the "demand plus volume" rates, with demand subject to the "ratchet" clause and with rate changes to be determined by the utility method.

When it became apparent that the May 1 deadline for a new contract would not be met, the City Council of the City of Dallas passed a resolution dated April 16, 1973, which would allow Farmers Branch to continue to take water from Dallas. The resolution stated that Farmers Branch, by taking service after May 1, 1973, accepted the terms and conditions of a contract, which was made a part of the resolution. This contract limited the rate at which water could be withdrawn to 8.5 millions of gallons per day; the total amount that could be taken in any one year was limited to 1,573,458,000 gallons; such water was to be only that which was in excess to the needs of Dallas and its other customer cities who had non-surplus water agreements; and it provided the City of Dallas could revise rates to Farmers Branch with one month notice. On April 30, 1973, the City of Farmers Branch filed a complaint with the Texas Water Rights Commission. This action was authorized by resolution of the City Council of the City of Farmers Branch on April 16, 1973, the same day that the Dallas City Council had passed its resolution.

The restrictions placed on the rate of delivery and the total amount that could be withdrawn under the Dallas contract resolution were the same amounts Farmers Branch had taken in the prior year, but on August 13, 1973, the rate of delivery was not adequate to supply that city's needs. Farmers Branch officials requested an increase in the rate of flow from 8.5 million gallons per day (mgd) to nine mgd, but Dallas officials refused to open the control valve. Representatives of Farmers Branch then opened the valve. The next day, Dallas personnel returned the rate of flow to 8.5 mgd. Farmers Branch responded by sending its representatives to open the valve a second time and posting an armed guard to prevent Dallas personnel from reentering the vault area.

The same day, August 14, 1973, attorneys for Farmers Branch filed a petition in the 68th District Court, Dallas County, for a temporary restraining order and injunction, seeking to restrain the

> City of Dallas from refusing to supply water to the Plaintiff City of Framers Branch, or from taking any action to impair Plaintiff from receiving a sufficient supply of water to provide for the municipal and domestic water requirements of the City of Farmers Branch

until the Texas Water Rights Commission issued its final order concerning the Farmers Branch complaint. Dallas agreed to furnish water at the posted rates to meet Farmers Branch's needs until the Court could hear arguments for the temporary injunction, so the restraining order was denied as being unnecessary.

On August 28, 1973, Farmers Branch filed an ancillary petition asking the Texas Water Rights Commission to compel Dallas to continue to serve water to Farmers Branch during the term of the pending rate hearings. At the ancillary petition hearing, Dallas agreed to continue to furnish water to Farmers Branch at a maximum delivery rate of ten mgd for the duration of the coming hearings provided Farmers Branch would pursue the hearings with diligence, pay the posted rates and give adequate notice whenever it needed an increase in the rate of delivery of water. Farmers Branch agreed. The Commission set the date for the hearings to begin on December 4, 1973. Farmers Branch then applied to the 68th District Court to have its request for a temporary injunction dropped without prejudice. The Court granted the request.

Before the hearings before the Texas Water Rights Commission could begin, the City of Grand Prairie decided to join the plaintiff Farmers Branch as an intervenor and filed a petition to that effect on October 9, 1973.

The hearings began on December 4, 1973, and were closed on November 1, 1974, after 5,194 pages of testimony. Farmers Branch presented 73 exhibits, Grand Prairie 11, and Dallas 64. During the hearings various rate making philosophies were advanced, and the consultant for Farmers Branch actually produced what could be considered to be a cost-of-service study (Petitioner's Exhibit #73) using both the cash basis and utility basis for determining revenue requirements. Virtually all items of cost, and some revenues, were argued in detail.

During the hearings, the contract between Dallas and Grand Prairie expired. On June 9, 1975, Grand Prairie filed an ancillary petition with the Commission asking the commission to compel Dallas to continue to serve water to the City of Grand Prairie for the duration of the hearings. On the nineteenth of June, 1975, the Commission instructed Dallas to continue to serve Grand Prairie at the rate then being charged to other customer cities. Nearly a year after the hearings ended, on September 18, 1975, the hearing examiners filed their report and recommendations with the Commission. Dallas officials considered it to be unfavorable.

Dallas had maintained from the time of the Farmers Branch valve-setting incident that the Texas Water Rights Commission did not have jurisdiction over this case. On December 16, 1975, Dallas filed a petition asking the Commission to review its jurisdiction and to dismiss the case for lack of jurisdiction. If the Commission found that it had jurisdiction, then Dallas wanted the Commission to require the Examiners to make findings of fact and conclusions of law as required under the newly enacted Administrative Procedures Act. The Act did not go into effect until January 1, 1976, but in view of the fact that Christmas holidays were coming soon, there was very little chance that the question of jurisdiction could be answered before January 1, so the premature alternative was noted, but accepted, by the Commission. On February 9, 1976, the Commission ruled that it had jurisdiction and sent the case back to the Examiners for findings of fact and conclusions of law which by then were required by law.

The Examiners then filed a Proposal for Decision with the Commission on March 26, 1976. The Commission asked the parties to file their proposed findings of fact and conclusions of law on or before August 31, 1976. The final order was published by the Commission on April 6, 1977.

Until January 1, 1976, when the Administrative Procedure Act became effective, the City of Dallas could not appeal the Commission's ruling that it had jurisdiction in the dispute until the Commission entered its final order. Then, with that order, the City of Dallas could appeal to the courts to ascertain if the actions of the Commissioners came within their authority. The Administrative Procedure Act permitted the jurisdictional issue to be determined by "declaratory judgement on the validity or applicability of the commission rule governing water rate hearings". So, on February 22, 1977, before the Commission entered its final order, the City of Dallas petitioned the District Court of Travis County, Texas, 53rd Judicial District (case no. 258,079) for a determination of the Commission's jurisdiction over the rate case. In its petition, Dallas noted that Farmers Branch had filed a second rate case before the Commission had issued a final order on the first case. Farmers Branch was seeking relief from Dallas' January 31, 1977, rate ordiance which had become effective February 1, 1977.

The Dallas petition contended that the Commission rule governing the action to be taken by the Commission when a complaint was filed under the Texas Water Code was inapplicable "to complaints filed with the Commission involving treated water service provided by Dallas to other cities or to water district" ...and that the Commission's jurisdiction never had applied to contracts (our underscore) between incorporated cities for treated water service. As an alternative, Dallas contended that if the Commission ever had jurisdiction of any kind, it was repealed by the Texas Public Utility Regulatory Act (PURA), which had become effective September 1, 1975.

On March 15, 1977, the Attorney General of the State of Texas dutifully issued an answer for the defendant, Texas Water Rigths Commission. Then, on September 30, 1977, Farmers Branch filed a petition asking to intervene on behalf of the defendant.

While the jurisdictional question was still pending, the Commission issued its final order on April 6, 1977. Both parties filed motions for rehearing on May 7, 1977. Neither motion was acted upon by the Commission, so under the Administrative Procedure Act, the Commission's decision became final and appealable ninety (90) days after the date of the Commission's order.

On August 4, 1977, the City of Dallas filed case no. 264,178 in the District Court of Travis County, Texas, 53rd Judicial District naming the Texas Water Rights Commission, et al, as defendants, appealing the Commission's final order. Farmers Branch also appealed in case no. 264,151 in the 200th Judicial District. The Commission made a motion that the two cases be consolidated into case no. 264,178. The motion was granted.

Judge Hume Cofer decided to rule on the question of jurisdiction (case 258,079). In his decision of November 14, 1977, Judge Cofer ordered that the Texas Water Rights Commission order dated April 6, 1977, should be set aside and reversed "...for the reason that the same is in excess of the statutory jurisdiction and authority of the Commission..." He also dismissed the petitions of Farmers Branch and Grand Prairie. Thus, the 53rd Judicial District had wounded two birds with one stone; the question of jurisdiction and the appeals of both parties to the Commission's order.

Thirteen days later, the Texas Water Rights Commission filed notice of intent to appeal to the court of Civil Appeals for the Third Supreme Judicial District at Austin, Texas.

In rendering his decision for the Court of Civil Appeals, Justice O'Quinn noted that:

> The controlling issue in this lawsuit is whether the Texas Water Rights Commission has jurisdiction to determine rates charged for water supplied, absent any contract, (emphasis supplied) by a municipality, in this case the City of Dallas, when engaged in selling water beyond its corporate limits to another municipality.

Justice O'Quinn then held that:

> (1) Water Rights Commission had jurisdiction to determine charges for water supplied by City of Dallas to other municipalities, and (2) Commission could order refund of excessive rates paid from and after retroactivity effective date of Commission's order.

The Supreme Court of Texas refused to hear appeals on January 2, 1980, thereby upholding the decision of the Court of Civil Appeals. After this decision, the only remaining action on the first rate case was the request of both the defendent, Dallas, and the plaintiffs, Grand Prairie and Farmers Branch, for a rehearing before the Texas Water Rights Commission concerning its final order.

ISSUES DEVELOPED DURING HEARINGS ON THE FIRST RATE CASE

In its petition filed before the Texas Water Rights Commission on April 30, 1973, the City of Farmers Branch asked the TWRC to order Dallas to furnish water to Farmers Branch upon reasonable terms and conditions and to fix reasonable and fair and equitable rates to be charged by the City of Dallas. Ideally, the rate structures and rate making processes must be able to meet two tests. They should not produce unreasonable or unfair results between customer groups and they should produce as little inequity as possible between customers within each group. In this hearing, the customer groups were the customer cities and the Dallas retail customers. In reality all of the customer cities were involved in spite of the fact that only Farmers Branch and Grand Prairie had filed complaints.

Rate Structures

By far, the most commonly used wholesale rate structure in the country at the time of the rate hearings was the volume-only rate. While some, if not most, of those rate structures included unit changes that went down as each customer used more volume, in some, unit changes remained the same regardless of volume. Presumably, some rate structures existed in which the unit cost rose as volume rose. But the rate that had first been applied to both Farmers Branch and Grand Prairie was the flat charge per unit of volume.

The flat rate had several advantages to the customer cities. It was easy to budget water supply costs because the only estimate that had to be made was the total volume of water that would be used during a year. Volume times a flat rate equalled the estimate of total cost of water supply for the budget year. The city budget officer could then add the cost of operating the water system to the supply cost, divide by the number of units of water to be sold and arrive at the charges to be made to the city's customers. If the selling city were willing to sell water at any rate of delivery at the flat rate, then building undergound or overhead reservoirs in order to maintain delivery and pressure during peak use periods was not a critical necessity for the purchaser. The selling city would do at least part of that.

Another advantage, particularly in the case of Grand Prairie, was attributable to the fact that city had water supply wells. Grand Prairie could, and did, curtail the use of Dallas water in the winter. Since well water was less expensive than the water purchased from Dallas, it was used year 'round with the exception of a nominal 400,000 gallons per day minimum use of Dallas water, and Dallas water was used to supply the summer peak.

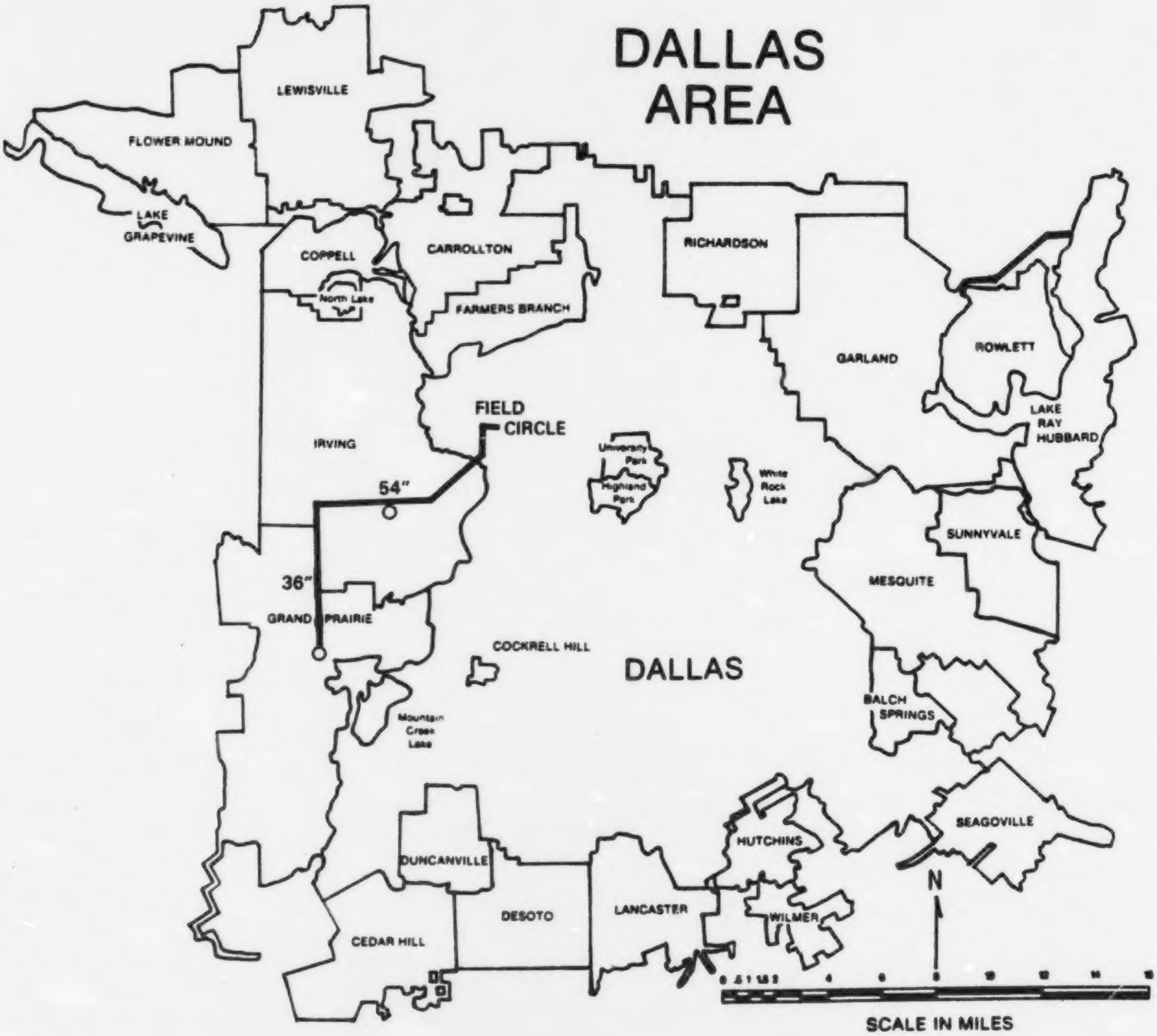
On the other hand, the two-part volume-demand rate enabled the City of Farmers Branch to earn a lower overall rate than if it had been on the straight volume rate, which assumed a 2.25 to one load factor.

Grand Prairie was on the end of a line used jointly with Irving, which is upstream from Grand Prairie. Dallas had a rate of flow controller at Field Circle, the point where the joint line to these cities draws water from the Dallas system (Figure 5). Once the controller was set, Irving could take water at a rate that would reduce the amount of water available to Grand Prairie. Asked at the rate hearing how the use of the joint lines was administered, Mr. Clifford Johnson, City Manager of the City of Grand Prairie testified:

> Well, the flow controller and the main line that serves Grand Prairie and Irving both come from what we refer to as Field Circle in Dallas through a 48-inch water line. After that service is supplied to Irving, then it reduces down to a 36-inch water line and comes to Grand Prairie. On many occasions, Irving would take water during the day to satisfy their demands and we wouldn't take any at all because of the lack of pressure in that line. We'd take water then at night when we really did not have the need for it during the day like Irving did in order to be able to have pressure to take water, so the pressure wasn't there on many occasions to supply with the water which we needed during the day.
> Q. Do you know why Irving was having to take during its peak hours of usage? Did it have sufficient--
> A. They didn't have sufficient storage and they had a water pressure problem, being able to serve customers directly from that 48-inch line.
> Q. And this was normally the way that the water take from this line was administered during this period of time and even until the current time, is that correct?
> A. Yes, it is.
> Q. Did this situation have an effect on the problem of the City of Dallas over the rate at which water was being taken?
> A. I would think that it would, yes.
> Q. Did it have an effect on the maximum rate at which Grand Prairie would take during the periods of time that water was available as opposed to the rest of the day?
> A. Yes, considerably so.
> Q. And would not this effect have been that Grand Prairie was required to take at a much more rapid rate during the times that it could get water from the line?
> A. Absolutely.

Johnson's later testimony established that the rates of delivery to each of the two cities were a matter not within the control of Dallas.

> Q. There have been times since you have been City Manager here in which you--the City of Grand Prairie and the City of Irving have had disputes over the billing that the City of Irving has made to the City of Grand Prairie?
> A. That condition may be true. I'm not personally at this point remindful of any such event.
> Q. To go back to this physical condition that you described that exists on this joint pipleine, now, this was a situation that was worked out before you became City Manager.


DALLAS
AREA
LEWISVILLE
FLOWER MOUND
LAKE GRAPEVINE
COPPELL
North Lake
CARROLLTON
FARMERS BRANCH
RICHARDSON
GARLAND
ROWLETT
LAKE RAY HUBBARD
FIELD CIRCLE
IRVING
University Park
Highland Park
White Rock Lake
54"
36"
GRAND PRAIRIE
SUNNYVALE
MESQUITE
COCKRELL HILL
DALLAS
Mountain Creek Lake
BALCH SPRINGS
SEAGOVILLE
HUTCHINS
DUNCANVILLE
DESOTO
LANCASTER
WILMER
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N
0 .5 1 1.5 2 4 6 8 10 12 14 16
SCALE IN MILES

Figure 5. Irving-Grand Prairie Pipeline

> A. Yes
> Q. And the City of Dallas furnishes water at the Field Circle installation for both of you?
> A. Yes.
> Q. And how you divide that water and what troubles you have between you is none of Dallas' problem, is it? That's between you and Irving, right? If Irving takes more than its fair share of the water as it comes through, there's nothing that Dallas can do to control that, is there?
> A. Not on the distribution between the two cities, no.
> Q. Okay. Now, you talked about a lack of pressure. You referred in your testimony to a lack of pressure. Would you tell me again what you said in that regard?
> A. I said that there were many many times when there would not be adequate pressure during the day for us to take water off of that line. And we would wait and take water at night when there would be more pressure on the line, and I believe that was my testimony.
> Q. That condition could result from the pattern of taking by Irving?
> A. Yes, it could.
> Q. And as a matter of fact, one of the problems that you have had with Irving, is it not, is the fact thay they have taken--and I don't mean serious problems--but one of the reasons for pressure losses is their taking water off of that pipeline at several points?
> A. Yes. I didn't look at it as a problem. I looked at it on the basis of cooperation and enabling cities to be able to satisfy both of our requirements and I didn't look at it as a problem.
> Q. The pressure problem Grand Prairie being downstream from Irving on the pipeline, is created for Grand Prairie by the pattern which Irving takes water off of the common pipeline?
> A. We would be upstream (Sic) from Irving, yes.

Two possible solutions were suggested by Dallas's special attorney as to how to resolve the problems of distributing changes based on the demand rate between the cities of Irving and Grand Prairie.

> MR. WILSON: Mr. Examiner, I think it's important that this be clarified as you say. There's no reason in the first place that a--let me back up. I take it what you are saying is the problems which would occur to Grand Prairie under a contract which has a demand rate in it--is that what you are saying--because of their peculiar situation they would get a disproprotionate maximum to minimum rate and therefore have to pay a high demand? It seems to me that can be handled in one of two ways. One is to put a rate of flow controller at Grand Prairie and they just simply work out their relationship with Irving to where what if they can take on a unity basis, just insist on their rights as Mr. Johnson has testified to that they be allowed to take at that rate at unity. But that's not anything that affects Dallas. The other alternative would be for them to get together in some way and put a rate of

> controller--rate controller at Field Circle and have the--as far as Dallas is concerned, the demand is the combination of the demand, and then they allocate that demand request between themselves which again would not be anything--would not be Dallas' business.
> THE EXAMINER: Well, I think basically you're right on that, Mr. Wilson. The problem that I'm looking at is in spite of the two cities' problems, it involves Dallas to the extent of the rates that are being charged by virture of the problem.
> MR. WILSON: Dallas has to provide max day facilities throughout its facilities to meet the combined demands of these two cities and it has got to be paid for. It's just that simple, and however it gets paid for is all right.

An as aside, the latter alternative agreeing upon the rate-of-flow controller setting at Field Circle was chosen later in order to control the problem. It probably is not a perfect solution, particularly in times of high water consumption, but it does relieve Dallas of operating problems arising from the joint use of the Irving-Grand Prairie line.

Another rate structure possibility was mentioned but there was very little discussion of it. In very early testimony, one of the petitioners' consultants described a volume-only rate with an escalating minimum. This is a rate structure that was in quite common use. However, there was simply very little interest in it. The consultant described it:

> Well, it's on a straight gallonage basis...and it's determined each year. But it's on the estimated requirements, revenue requirements for the following year. And its based on a formula which takes the distance and length of pipeline into consideration...
> Q. And what are the purpose of those minimum payments?
> A. Well, it's to make sure we get enough money to pay our debts.

The rate structure that received the most attention from the Commission was the demand-base capacity rate. Actually, this is not a rate structure, but a method of allocating costs to functions set forth in the American Water Works Water Rates Manual. These costs are then allocated to the customer classes to determine the costs of service to be recovered from each class. Nevertheless, the Texas Water Rights Commission suggested rates based on the base-extra capacity method of allocating costs. Mr. James Wilson, attorney for Dallas, in his letter dated February 1, 1977, to the Commissioners stated:

> Gentlemen:
>
> This letter and the one which follows will discuss the rate structure issues which must be decided by the Commission. We will start with an attempt at a "Ned-and-the First Reader" discussion of the "base-extra capacity" method of allocating costs and the relationship of the "base-extra capacity" method to the two-part volume and demand rates used by the City of Dallas.

> The reason for this explanation is that Mr. Patton, Mr. Sarma and Mr. Booth are apparently under the impression that under the "base-extra capacity" method, "base" costs are volume related costs. They also apparently believe that one constructs a two-part rate with volume and demand components by placing all base costs in the volume charge and all extra capacity costs in the annual demand charge. I believe Mr. Sarma even went so far as to say that this is the purpose of the base-extra capacity computation.
>
> The fact of the matter is that the base-extra capacity computation has nothing to do with separating volume-related costs from demand-related costs. The base-extra capacity method has to do with separating costs, both volume and demand, which are related to the costs of providing average day service from costs which are related to the costs of providing maximum day service.
>
> Demand related costs are costs which must be incurred to meet the demand imposed on the system regardless of how much water is used. Volume related costs are costs which vary with the quantity of water handled by the system. When costs have been separated into base costs and extra capacity costs, what has been done is to separate costs--both volume and demand--which are necessary to provide service on an average day from costs which are necessary to meet the demands on the maximum day. The average day costs will include a substantial amount of both demand-related costs and volume-related costs. Extra capacity or maximum day costs are demand-related, but they do not by any means include all demand-related costs.

The plaintiffs' greatest fear of the two-part rate seemed to be that Dallas could overcharge the customer cities for demand. If all of the cities had their peak demand at the same moment, there was really no opportunity for this to happen. But the odds against a coincidence of peaks occurring even on the same day were very great, meaning that some cities would be having a peak on different days and times from the rest of the cities. To the extent that a customer city was not using the capacity which it had requested and paid for, the city of Dallas would be able to sell that capacity to another city. The plaintiff's attorney, in questioning Mr. Robert Banker of Black & Veach on May 31, 1974, elicited this information:

> Q. Well now, isn't the result of this that if the actual maximum day experience by each of these cities occurs on different days, that by charging them all on what their actual maximum day was--accumulative effect is you produce more revenue with the $27,540 per MGD than you really had a cost of, don't you?
>
> A. On the basis of your if, yes. If they don't occur all at the same time. But our studies indicate that the maximum days do essentially occur all coincidentally. In other words, you should divide by the noncoincidental demands of all of them. A coincidental and noncoincidental are the same here. In the '69 studies--the study of 1969, the history showed that

> for those that had demand meters, the peak occurred at the same day, or so close to the same day that they were coincidental on the system.

The 1959 rate study upon which the demand charge was based, actually did take into consideration that all the cities would probably not peak at the same time. In that study, all the estimated peak days of the customer cities were added together and then divided into the total estimated costs of providing peak day service. Thus, the only way Dallas could have overcharged, assuming that the total demand cost was estimated correctly, was to have underestimated the total peaks of demand that the cities would place in the Dallas system.

The "Ratchet Effect"

Part of Dallas's rate structure involved the "ratchet effect". During the hearings, this term was used to describe the Dallas policy of allowing a city to increase the rate at which it took water from the Dallas system and then continuing to charge the customer city for the demand placed upon the Dallas system whether or not the customer ever used that amount of demand again. The Dallas position on their policy was stated by Mr. R. F. Banker of Black and Veatch:

> Q. Now, I believe Mr. Richardson was also critical of the ratchet effect in the Dallas rate schedule. I would appreciate if you could comment on that.
> A. I think the ratchet effect which as applied in Dallas, either in the past or--and in certain--some of their contracts proposed for the future, is simply to say that once a demand has been established and you pay for service on the basis of that demand, that you have established it, you've exerted it, you potentially can exert it again, the facilities are there for you and they're costing the city to hold those facilities, operate them and maintain them, whether you use them or not. And I think the ratchet is entirely appropriate. The comment has been made that the ratchet effect will overproduce revenue in a year, or would be too much cost in a year that the facilities--that the demand is not placed. Let's say a suburban community exerts a five million gallon a day demand one year and in a growing situation it would be unusual, but they could have a lesser demand in the following year of say four and a half million gallons a day. They would have to pay for the full five million of demand because they had exerted the demand, they have shown they can exert it, Dallas has to have-Excuse me. Dallas has to have the facilities to provide for it. There is not excess revenue involved. It is simply revenue there to meet cost.

Needless to say, the plaintiffs saw the ratchet effect in a different light. They felt that Dallas had developed the demand portion of the rate using the 24-hour period of maximum flow. Then, they perceived, Dallas was really applying the demand rate to each city's rate of flow during the single hour or less of maximum flow. If Dallas were permitted to do this the charge for a unit of demand would be too large since the sum of the cities' maximum hourly rates of flow always exceeds the sum of their withdrawals over the 24-hour period of maximum flow. Here the plantiffs' attorney is developing that position:

> Q. All right, sir. Now, are there some problems involved in the type of analysis that's been made developing your capacity charge on a maximum day when you have your actual charge of it set on an instantaneous basis rather than on a maximum day? . . . .
> A. Yes, sir. You would--if you were to develop your charges based on maximum day and if this applied to everybody in the system, and you then received rates on a portion--an instantaneous rate, which would probably be the maximum hour, you would be, in effect, based upon the characteristics of the Dallas system, receiving approximately 50 percent more for that element of the rate base--of the rate, not the rate base...

Further, the plaintiffs felt that once the demand rate was set for a customer city, Dallas could overcharge the entire customer city class by virtue of a circumstance where a customer city did not again use the capacity routinely:

> MR. BOOTH: Q. Now, Mr. Richardson, one thing that has concerned me was the ratchet effect of the Dallas contract proposal that Mr. Graeser described. Is this--in your experience, are you familar with contracts which have this--a capacity type charge with a ratchet effect in it?
>
> THE WITNESS: A. I have no experience. This is the first I've heard of that effect.
>
> Q. As an expert in your field, can you see some difficulties that that concept in a contract--or basic unfairness that that concept might have insofar as the customer city is concerned?
>
> A. Well, if you had a customer city that, say, had a large industry, for example, which could take 20 or 30 percent of the water as we have in Waukesha, Wisconsin, which is one of our clients, we do the sewerage work for them, and so we're interested in the water use in that city, and they have a large variation due to a defense plant which manufactures--I think it's something to do with arsenals, and that water use fluctuates greatly depending upon what contracts they have in house, and you could have a customer city in that type of a situation, and I don't know whether this exists in the Dallas system or whether this is just a hypothetical case, but you could have a customer city that has a large industry and one year it could be taking water and would require the demand and the system would have to furnish that demand, and then the next year, why, the demand would not be placed on the system and may not be forevermore, but the City would have to continue to have to pay for that water use under a ratchet effect.

> Q. All right, sir. Now--but within Dallas-in this specific situation with that assumption, wouldn't Dallas have had to have paid for that extra capacity to furnish it for that year, and so therefore, it would be an expense to Dallas carrying on for the life of the contract, even though it was only used on year?
>
> A. Well, I think in that case it would come out of reserve capacity, and assuming that facilities are built in advance of needs, that it would put a load on the Dallas system for that year, but after that year, Dallas would have--would not have the operating and maintenance expense for those--for that service, yet they would be receiving revenue for that service.
>
> Q. And that capacity could be used for something else--
>
> A. And they would be selling that capacity to another customer, and they would, in effect, be receiving payment for service that they were not rendering.
>
> Q. They would be getting double paid for it then, wouldn't they, in effect?
>
> A. Yes, sir.

In the final Order of April 6, 1977, the commission held that the ratchet effect could stay:

> The Commission feels that the Customer Cities should develop their own facilities to meet their peak demand requirements or should be willing to pay a fair and reasonable price, as set by the Commission in this order, for the water to meet their peak demand requirements. In this regard it is the opinion of the Commission that the "ratchet effect" employed by the City of Dallas contributes to this end. However, in billing, the City of Dallas should charge the Customer Cities $.1843 per 1000 gallons for their average day demand requirement and $25,868 per mgd for that extra demand which is in excess of the average day demand.

Utility or Cash Basis

Since Texas had not had a water rate-making policy adopted by any statewide utility regulating body, the parties to the hearings looked for the most generally accepted authority. Both the plaintiffs and the defendant sought to couch their arguments about rate determination in terms of the guidelines contained in the American Water Works Association's "Water Rates Manual of Water Supply Practices".

The Manual states that enough revenues are needed for a utility to furnish "adequate service and assure the maintenance, development and perpetuation of the system". The Manual also discusses two widely used basis for the determination of revenue requirements: the "utility" basis and the "cash" basis.

The utility basis involves the determination of all operating and maintenance expenses, taxes, if any, depreciation and a return on the "rate base".

The cash basis involves acquiring enough revenues to meet all the cash obligations of the utility as those obligations mature or come due. Since depreciation and return on rate base are not cash requirements, they will not ordinarily be used in determining revenue requirements on the cash basis.

Conversely, principal payments on debt, and the various reserves required to meet bonded indebtedness covenants are cash requirements that are usually found in revenue requirements when the cash basis is used, and they are not found, usually, in revenue requirements when the utility basis is used. So about all the two methods have in common is the need to meet operating and maintenance expenses and taxes, and even then there may be differences as to what is included under the two methods. Even though both methods have the same objective, there is ample room for argument about which to use.

As noted before, Dallas had used the cash basis for determining its revenue requirements in the 1959 rate study. Then after the Black & Veatch study of 1972, Dallas began writing its customer city contracts with a provision that permitted Dallas to use the utility method in determining the amounts to be charged the customer cities. The study had shown that the rates being charged under the cash method were substantially lower than they would have been under the utility basis, using the methodology and assumptions that Black & Veatch had used.

At the hearings, the plaintiffs argued that the cash basis should be continued. They felt that the return on rate base under the utility basis would represent an undeserved "profit" to Dallas. Return is expressed as a percent of rate base. In general, a utility's rate base is the net value, after deducting accumulated depreciation, of the assets used and useful in supplying service to its customers. In turn, the net value of those assets less indebtedness represents the owners' equity in the utility.

The plantiffs' position was that they were responsible for only those costs associated with facilities used to furnish service directly to them, whether the utility basis or the cash basis were used. But, the plaintiffs said, the City of Dallas had used the cash basis long enough for the plaintiffs to pay for those facilities and was now switching to the utility basis in order to continue charging for those same facilities without recognizing that the plaintiffs had an equity.

In its final order, the Commission ruled that the utility basis for determining revenue requirements was the proper method in this case:

> The Utility Basis is the proper basis to determine the revenue requirements for the water service to the Customer Cities in this case. This shall not be construed as a holding that the Cash Basis is an improper methodology in some other case. In the present case, the Utility Basis

> gives full consideration to the investment Dallas has in its water system and it is Dallas' desire to have a rate based upon the Utility Basis.

Inclusions in the Rate Base

Under either the cash basis or utility basis for determining revenue requirements, customer groups are responsible for the cost associated with the facilities that are used and useful in providing their service. The parties to the hearings had differing ideas about what facilities should be included as being used and useful.

Mains providing service to the customer cities were also used to provide service to the various customer groups served within the City of Dallas. Facilities so used were termed to be "common-to-all", a term used by Black & Veatch's "Review Report on Contracts and Charges to Outside City Wholesale Water Customers for Dallas Water Utilities" dated 1970.

The Dallas position on including mains in common-to-all facilities is the responsibility of customer cities was that a portion of the costs associated with all transmission mains should be allocated to the customer cities, without regard as to whether or not water flowed directly to any of the cities through the lines. The logic was that as the load from customer cities developed, those cities were using mains whose original purpose was to serve inside Dallas. Dallas, then had developed additional means of serving itself in order to accomodate the customer cities. Notable among these additions was 90" diameter line from the east side of Dallas to serve the downtown area which could no longer be supplied adequately from the transmission system coming from the Carrolton treatment plant. Dallas felt that the cities were connected to the Dallas system rather than to specific lines or treatment plants.

The plantiffs argued that only those lines and facilities through which water flowed directly to the customer cities should be considered, with perhaps a few exceptions, such as the downtown feeder main from the east side of Dallas, which clearly were making continued service available to the customer cities. This view, termed "the molecular tracing theory" by the defendants, was expressed by the plaintiffs" witness, William H. Richardson:

> Yes...we have only allocated the cost of the one transmission main to the service of the suburban areas, and the reason for that was that in the Dallas system it did not appear that the 12 inch and 24 inch mains were assisting in service to those areas. Now, I agree that in some systems where you have an orderly development and a symetrical area where the distribution system and the transmission mains fan out from a central point for service to an area completely surrounding a core city that it would be proper to allocate a portion of transmission mains depending upon their size, depending upon the design of the distribution system to suburban service. A case in point is Chicago where you have the filter plants located on the lake and the area developing

> and those filter plants and the suburban area being symetrical about the city. Well, there you could say that as the transmission system proceeds out, everybody benefits from that use, and that you develop a rate, you have to analyze what that system is and how it operates and what facilities are actually used, and in looking at this system, it seemed to us unfair to allocate 12 inch mains by half of 12 inch mains for this service, a portion of 24 inch mains when in our opinion, they did not actually serve.

The Commission agreed with the plaintiffs on the issue of which transmission lines were used to serve the customer cities:

> The determination of the value of Dallas' investment in the facilities which are used in providing service to the Customer City class requires the allocation between the Customer City class and Dallas' inside customers of costs incurred in providing service to the two groups of users. These facilities will be referred to as "Common-to-All".
>
> The Common-to-All facilities comprise all of raw water supply whether or not actually used to provide water service to the Customer Cities and all water purification and primary treated water pumping whether or not actually used to provide water service to the Customer Cities. In the case of distribution mains, only those mains which are actually used to provide water service to the Customer Cities in the sense that they transport water to the Customer Cities are considered used and useful in delivering water to the Customer Cities in 1972. Distribution mains which transport water solely to the area within the City of Dallas are excluded. The following is a list of transmission and distribution lines which are Common-to-All:

Location	Size	Completion Date
Denton Road	66" & 54"	11-06-51
Beltwood & Belt Line	60" & 54"	3-12-62
Belt & Coit & Spring Valley	48"	8-03-64
Floyd	42"	2-01-65
John Carpenter & Westmoreland	48"	12-12-60
Cockrell Hill (Service line)	30"	8-03-59
Cockrell Hill (Service line)	16"	4-24-72
Cockrell Hill (Service line)	12"	6-14-49
Camp Wisdom	36" & 48"	2-17-69
South High (Service line)	72"	6-17-63
Lake June	90"	9-30-63
Wilmer Hutchins (Service line)	18" & 16"	4-05-71
Augustine	54" & 48"	7-18-60
Master	24" & 20"	9-07-65
Rylie (Service line)	16"	11-04-68

Another major area of common-to-all responsibility is supply facilities. These consist of reservoirs, raw water transmission lines and pumping facilities. The plaintiffs argued that costs relating to all these facilities, not just the ones where molecules of water could be traced directly to the customer cities take off, should be included. The defendant felt that the cities should be responsible for only those reservoirs that Dallas acquired by representing that they would be used to serve customer cities. Of course, these reservoirs were also the most costly to acquire and operate.

The Examiner raised questions about the plaintiffs' position:

> THE EXAMINER: I was trying to clarify in my mind why would you only consider part of a distribution system but all of the reservoir systems when it appears that only part of the reservoir system is going to be supplying that particular distribution system.
>
> A. We're allocating what we believe is correct to those costs, and the reservoirs were taken into volume charge, and this was the method that they used. (They being Dallas).

So, the plaintiffs were using all reservoir costs averaged together because that was the method Dallas had used in the 1959 study. But, they also stated they were being fair to Dallas in doing so, according to this answer to the plaintiffs' attorney's question:

> Q. Now then, if that particular source of water supply insofar as Dallas is concerned was less expensive than some other source of water supply at another reservoir, would it not be reasonable to assume that Dallas' standpoint that the customer cities ought to share in the overall cost of the water supply and not get the advantage of the low priced water out of one particular reservoir?
>
> A. That would be reasonable, yes.

When asked a clarifying question about the allocation of reservoir costs, the plaintiff's consultant said that he thought the really correct way to allocate them was to follow the molecular tracing theory:

> Mr. Wilson; Well, you don't understand his (the Examiner's) question. His question is that if you only considered the distribution line for max day, that one little distribution line that runs from that plant, why did you not also consider the reservoirs and transmission lines that feed the Elm Creek plant?
>
> THE WITNESS: That would probably be the correct way to do it, and if we had the raw data which would allocate correctly the amount of reservoirs which were used for these areas and those specific transmission facilities used for those areas, that would be the correct way to do it.

MR. WILSON: And you could have then concluded that they didn't have to pay hardly anything.

THE WITNESS: That may be the fact.

Dallas participants developed what they termed the "East Side Story". the story involved the argument that the customer cities had a legal right to receive water from only those reservoirs on the east side of Dallas, since Dallas had made representations to the Commission in obtaining water rights to the eastern reservoirs that they would be used to serve the customer cities. Since the water from those lakes did not actually serve the customer cities all the time, the concept of "wheeling" was introduced. Here is the testimony that developed the East Side Story:

WILSON, ATTORNEY FOR DALLAS: All right. Now, let me interrupt at that point and make that point clear. The assumption is that the customer cities, by virtue of the representations, have rights in the supplies with respect to which those representations were made, and the problem is to get the water in which they have legal rights to them and to isolate the investment in the facilities which are devoted to getting their water to them, so to speak. So the assumption is that they are entitled to require service from Lake Tawakoni, from Lake Ray Hubbard, and from Lake Palestine, that they have no rights to service from the Garza-Little Elm of Louisville Reservoir or in Grapevine Reservoir. So we then proceed with the problem of isolating those facilities that are used to get their water to them. Now, this involves, does it not, Mr. Banker the application of the concept of wheeling--

A. Yes, it does.

Q. --because, as was very clear from this record, the water from the East Side plants, most of the time, do not and will not actually get to the Elm Fork cities. Now, would you--where--as I understand it, the wheeling concept is basically a concept used in the transmission of electrical energy.

A. That's correct, that's where I have known it to be used most of the time. The concept of wheeling is that the--there are multiple inputs to the system, and speaking of electric facilities, the multiple generating plants, maybe some 50, 75 miles south of the general service area, and there may be customers or users of the system that are on the other side of the system, and the problem is to develop a fair cost or charge for giving in effect, the power that's available on one side of the system to the customer on the other side, when there is in the middle a distribution or a transmission system not necessarily belonging to either one. An example is the Southwest Power Authority generates power in Arkansas and Oklahoma, or has facilities from which they obtain power, and transmit it to customers north of Kansas City, for example, and they use the Kansas City Power and Light Transmission network to assist in getting it there.

> The wheeling charge is to say what facilities are used in wheeling and take all the inputs and all--which is equal to all the power taken from the system, divide that into the facilities to get a unit price, a unit price, and--now, as a matter of fact, we know the power does not actually move across the system, it's kind of a substitute idea, and it's far more economical for everybody to not try to move it so far but to go on a substitute basis, and that is the concept in electric utilities, and it works just as well and just as appropriately in a water utility.
>
> MR. WILSON: Q. All right. Now--
>
> MR. PATTON: (The examiner): May I ask one question about that?
>
> MR. WILSON: Sure.
>
> MR. PATTON: Is this comparable to a Gulf distributor taking delivery from a Texaco tank in Austin, rather than driving to San Antonio to pick up fuel, and the reverse on the other end?
>
> THE WITNESS: I'm inclined to think so. I might want to have some reservations.

In their final order, the commission held that all reservoir facilities would be placed in common-to-all category, agreeing with the plaintiffs.

The parties argued about not only what facilities were to be included in the customer cities' responsibility for costs, but also about the basis for allocating common-to-all costs and the value of the facilities used in the rate base.

Dallas, in the 1959 rate study, had used estimated use of facilities by each of its customer classes to allocate the operating costs during the period that the rates were to be in effect. However, those costs were allocated in proportion to the use each customer class made of the facility(ies) each year. In the hearings, Dallas sought to allocate common-to-all facilities costs based on the proportion that the customer cities would be using them when those facilities were being used fully. In a sense, Dallas was saying that the cities would have had to build their own system facilities to meet their needs some years into the future. Dallas had built them instead. Unless the cities paid for the facilities based on the portion that they would ultimately use, Dallas would wind up paying for those facilities and never use them.

The plaintiffs felt that estimates of the use of facilities by each of the customer classes was too speculative, particularly if those estimates were projected many years into the future. They noted that Dallas had proposed allocating 38.3 percent of reservoir costs to the customer cities rather than the current (in 1972) use percentage of 17.2. The year that Dallas had estimated that the reservoirs then in existence would be fully utilized was 1994 and such projections should not be used for allocating costs. Present use, they argued, is the best, most acceptable method, with frequent review of the percentages used by each customer class.

The Commissioners decided that 21.82% of reservoir costs should be allocated to customer cities. As for the other common-to-all facilities, the Commission ruled that raw water treatment, pumping facilities and raw water transmission mains should all be allocated to customer cities on current use of 17.2% and they should be allocated 26% transmission mains.

Valuing the Rate Base

In its study of 1972, Black & Veatch had attempted to estimate the original cost of assets used and useful in serving customer cities by adjusting the average cost of the Dallas facilities by a factor or 1.2 times. This was done because the cost of facilities had been rising as newer customers were added. The report explains the adjustment this way:

> Trends in construction prices during the period in which the Dallas water system has been built indicate that the system, if built today, would require an investment in excess of 1.3 times its initial cost. In recognition of the responsibility of the outside city users for their own costs, a cost adjustment factor of 1.2 is judged to be applicable to investment in serving them. This adjustment does not represent the cost of serving a new customer, but an average of both long term and newer customers.

The plaintiffs argued that original cost should be used and rejected the use of such factors to determine the cost. They felt that each property unit could be, and should be, identified and the cost determined. They opposed the use of anything but the original cost of facilities assigned to them.

The Public Utility Regulatory Act (PURA) came into being before the Commission rendered its final order. PURA, though it was later determined not to apply to municipally-owned water utilities, allowed an adjusted value rate base. Sec. 41 (a) states in part:

> ...The regulatory authority shall have the discretion to determine a reasonable balance that reflects not less than 60% nor more than 75% original cost, that is the actual money value of any consideration paid other than money, of the property at the time it shall have been dedicated to public use, whether by the utility which is the present owner or by a predecessor, less, depreciation and not less than 25% nor more than 40% current cost less an adjustment for both present age and condition...

In its rate ordinance which was effective February 1, 1977, the City of Dallas used 60% original cost and 40% current cost, the maximum allowed under PURA.

The Commissioners decision was set out in its order of April 6, 1977.

It allowed the minimum provided under PURA, 75% original cost and 25% current cost. The decision stated:

> ...Rate Base should be a combination of Original Cost Less Depreciation (OCLD) and Trended Original Cost Less Depreciation (TOCLD). The Commission finds this combination to be 75% of OCLD plus 25% of TOCLD to be most equitable.

The Commission left no doubt that its decision had been affected by PURA:

> Dallas is entitled to have the reasonableness of its rates determined on the basis of a fair value rate base which takes into account reproduction costs or current value of the facilities used and useful in the Dallas water system. The Commission is of the opinion that its decision should be, at least in part, governed by the latest legislative pronouncements on the subject of rate making. The Legislature has spoken to this point through the Texas Public Utilities Regulatory Act which specifies that the Public Utilities Commission shall incorporate current value into the rate bases set by the Public Utilities Commission. Therefore, the Commission concluded that the consideration of current value would be appropriate in this case.
>
> Trending is a proper method of determining the Reproduction Cost of the facilities used and useful in the Dallas water system. For this study the Commission adopts the use of the Handy-Whitman Construction Cost Indices (South Central Region). It is recognized by the Commission that this publication contains no indices for the cost of land, rights-of-way and water storage rights and, therefore, adopts the stipulation of the parties relating to estimating the cost of these items. The stipulation, in essence, assumes the value of land to be increased in value in the same proporption as the facility constructed upon the land. The original cost of all facilities (including land and storage rights) is depreciated and the OCLD is then multiplied by the proper index to arrive at the Trended Original cost Less Depreciation (TOCLD).

It is interesting to note that the commission allowed depreciation of land over the useful life of the facility placed upon it. Land, having infinite useful life, is not usually subject to depreciation.

Rate of Return

Very little evidence was presented as to the rate of return that should be allowed on the rate base. The plaintiffs did introduce evidence that the imbedded interest rate on Dallas water bonds was 3.772%. But Dallas also asserted that the return on equity, that part of the system which is owned after deducting indebtedness, was usually somewhat more in order to compensate the owners for risks they assumed in investing in the sytem. The Commission's decision on the return to be allowed was very simple: 6 percent. Any return above that was unreasonable.

Cities as a Customer Group

Although Dallas asserted early in the hearings that the petitioners were seeking individual rates for themselves that would put the petitioners at an advantage over other customer cities, the petitioners did not pursue that line of argument. The Commission ruled on that question though with the simple statement, "The Commision finds that the Customer Cities should be treated as a class for rate making purposes". When the second rate case arose, all cities were named as parties to the case. Irving's objection to being a party was probably doomed by the Commission's ruling in the first rate case.

SECTION 6

THE SECOND RATE CASE

The second rate case had its beginning much the same as the first rate case--with a new rate ordinance. Consultants for Dallas, Turner Collie & Braden, engineers, and Arthur Andersen & Co., certified public accountants, completed their study of Dallas Water Utilities' revenue requirements in late 1976. Customer cities had been informed of the results of the 1959 rate study only after it was complete and new rates had been determined. During this study the consultants, as part of their contract with the utility, were required to meet the representatives of the customer cities to make progress reports and to explain their approach to the study. Several such meetings were held, and at the conclusion of the study, copies of the consultants report were furnished to the customer cities.

The rate ordinance effective on February 1, 1977, was based on the consultants' findings, but did not adhere strictly to the recommended rates. Table 6 makes the comparison between rates contained in the consultants' report and the January 31, 1977, ordinance for rates to cities with flow controllers.

The rate ordinance responded to some of the pressures Dallas was feeling as a result of the hearings before the Texas Water Rights Commission. It provided a clause for the continuation of volume-demand charges for those cities who had rate of flow controllers and flat volume charges for those cities who received their service without a rate of flow controller. The clause continuing the two-part 1959 rate structure (at about 21.3% increase over the rates that had been in effect since 1969) designated a temporary rate of $.1645 per 1,000 gallons of volume and $34,161 per mgd demand until July 1, 1977. The stated purposes of the temporary provision were

> ...to give the entitites more time to study and analyze the cost of service study..., provided that...the governing body of each entity that is currently in litigation with the City of Dallas concerning water rates in any court or before any administrative body passes a resolution accepting such rates for the period February 1, 1977, through June 30, 1977.

If the resolutions were not passed by March 1, 1977, then the four-part rate was to apply from February 1, 1977 until amended by a subsequent ordiance.

The four-part rate appearing in the ordinance was never actually in force. It would have become effective only if litigants failed to accept the temporary rates prior to the March 1, 1977 deadline. As a matter of fact, the ordinance merely stated that it was

TABLE 6. RECOMMENDED WATER RATES AND METHOD OF CALCULATION

Customer Cities

Cost Function[1]	Recommended Rate[1]	Basis for Calculation[1]	1/31/77 Rate Ordinance
Commodity	$0.07 per 1,000 gallons	Actual usage of metered water	$0.0713 per 1,000 gallons
Reservoir	$19,391 per mgd of reservoir capacity	Customer cities' allocated share of the three eastern reservoirs	$20,980 per mgd of reservoir capacity
Maximum-day average	$35,655 per mgd of maximum day	Maximum-day flow during the previous fiscal year or historical maximum-day, whichever is greater	$32,493 per mgd rate of flow controller setting times .8929
Peak	$6,635 per mgd of peak	Excess of peak flow over average flow during maximum-day	$5,765 per mgd rate of flow controller setting times .1071

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[1] Source: Turner Collie & Braden, Inc. report "City of Dallas, Dallas Water Utilities Cost of Service and Rate Design Study Water" Table 3

> ...the present intention of the City Council of Dallas to amend Chapter 49 of the Dallas City Code by adding Section 49-1.3 unless a more equitable rate structure is developed in consultations before July 1, 1977.

The rate ordinance was an attempt to get the customer cities involved in the rate making process, and to, of course, gain their acceptance of the results. The "intended" portion of the ordinance would give the cities the ability to determine cost of their water individually by allowing them to decide the extent to which they would use the various facilities of the Dallas system. The "ratchet" on rates of flow controller settings was retained, but cities with controllers were permitted to reduce their settings until June 1, 1977 and begin anew. Though the "peak" flow charge was stated separately, the charge for it was directly dependent upon the rate of flow controller setting, being 10.71 percent of the setting. Thus, the actual demand charge was a single rate of $29,630 per mgd x rate of flow:

Max day rate,	$32,943 times .8929	$29,013
Peak rate,	$ 5,765 times .1071	617
Total		$29,630

During the hearings Dallas maintained that the reservoirs of Lakes Ray Hubbard, Tawakoni, and Palestine were the only ones acquired by giving a pledge to the Texas Water Rights Commission to supply water to customer cities. Thus the more recently acquired, and more expensive, reservoirs, Lakes Tawakoni, Ray Hubbard and Palestine, were allocated to customer cities. Lakes Grapevine and Lewisville were allocated to the inside-Dallas customers. In their report, Turner Collie & Braden, Inc. stated:

> One cost component that merits specific attention here is the reserve for future reservoir capacity. Dallas owns storage capacity in a multiple reservoir system comprising five major reservoirs. In obtaining the water rights to, or ownership of, the five major reservoirs, the City of Dallas made no representation with respect to Lake Lewisville or Lake Grapeview that any of the yield was being acquired for uses other than that of the City of Dallas. Conversely, in the instances of Lakes Tawakoni, Ray Hubbard, and Palestine, representations were made that a portion of the yield was being obtained for use by Dallas' customer cities. In the Lake Palestine hearing before the Texas Water Rights Commission in 1972, it was estimated that the total average daily demands of Dallas and designated customer cities would approximate the safe yield of the reservoir system about the year 1997.
>
> In order to allocate raw water supplies between Dallas and the customer cities as a group, the entire yield of Lake Lewisville and Lake Grapevine is assigned to the inside-City customers. The remaining requirement for Dallas would be satisfied by assigning yield in the three major eastern lakes, i.e., Tawakoni, Ray Hubbard, and Palestine.

> The requirement of the customer cities as a class would also be satisfied by assigning yields from lakes, Tawakoni, Ray Hubbard, and Palestine, considered as a single entity to that class.

The City of Farmers Branch immediately filed a petition with the Texas Water Rights commission complaining of the new rates and requesting that all cities with contracts for wholesale treated water from the City of Dallas be made parties to the proceedings. All other cities, including Grand Prairie, had agreed to request the temporary rates.

Instead of adopting the four-part rate structure for cities with rate of flow controllers as provided in the January 31, 1977, ordinance, the City of Dallas decided to use the two-part structure while negotiations with the remaining cities continued. The temporary rates were in effect until March 29, 1978, when the Dallas City Council adopted a new ordinance, (No. 15790) with new rates and with a few rate structure changes which had been requested by the cities. This time a three-part rate was adopted, with peak capacity charges included in the annual demand charge. The schedule:

WHOLESALE WATER SERVICE CHARGES

Volume Charge	Annual Demand Charge	Annual Reservoir Capacity Charge
$.0713	$29,651	$20,980
X	X	X
Water used, 1000 gallons	Rate of flow controller setting, mgd	Amount of designated reservoir yield in shared reservoirs, mgd

The ordinance required each customer city to designate the amount of reservoir capacity it wanted from the "shared reservoirs'--Lakes Tawakoni, Ray Hubbard and Palestine. After setting out the amount that Dallas felt it needed for its requirements, 152 mgd remained available for distribution among the customer cities. The ordinance provided that the amount selected by the cities within the deadline period would be all that each would be entitled to obtain from those reservoirs. If less than the full 152 mgd were taken, then the City of Dallas would take the rest. The cities could not select any amount, though. They could not designate a daily yield of less than 50% of the rate of flow controller setting as of January 1, 1978, if a rate of flow controller was in use at the time, or 100% of the prior year's consumption if the city was on the volume-only rate.

In spite of the aspirations on the part of the City of Dallas officials, the new rate ordinance did not prove nearly so popular or acceptable as they had hoped. The provision requiring customer cities to select a share of the reservoirs was the least popular of all. Most cities seemed simply not to know how much reservoir capacity they wanted, or being faced with the prospect of the cost burden, felt they could not afford the cost at that time, a situation very similar to the one Grand Prairie had experienced with Lakeview Reservoir. On April 28, 1978, the city of Grand Prairie filed a petition with the Texas Water Rights Commission protesting rate ordinance No. 15790 and asking that the other cities be made parties to the action. Eventually, the cities of Carrollton, Hutchins, Coppell, DeSoto, and Cedar Hill filed separate actions against Dallas in regard to the same ordinance.

One of the first tasks of the Commission was to set interim rates during the pendancy of the hearings. The cities requested the interim rates contained in the rate ordinance adopted by the City of Dallas on January 31, 1977. Dallas agreed, provided that the commodity cost was reduced to $0.0713 per 1,000 gallons and $46,819 per mgd rate of flow controller setting was used for demand, that customer cities be required to escrow the difference between the April 1, 1978, ordinance (No. 15790) and the interim rate, and that the commission reserve to Dallas and any customer city the right to request reconsideration of the interim rate. On June 19, 1978, the Commission ruled that the interim rates to be charged would be the temporary rates set out in the January 31, 1977, ordinance and that all the customer cities would be named as parties to the litigation. The interim rates to be charged were to be effective from April 1, 1978, according to the ruling. Dallas eventually dropped its request for the escrow.

Five days later, on June 23, 1978, the city of Irving filed a petition requesting that it be removed from the named parties to the second rate case. Dallas objected on the grounds that the Commission had ruled on the interim rates for all parties. If Irving were removed as a party, it could avail itself of the rates under ordinance No. 15790, which were much less costly to Irving than the rates prescribed by the Commission. Irving could then wait for the outcome of the case and then opt for the rates set by the Commission in its final order if those rates turned out to be lower than the ordinance 15790 rates. If they were not, Irving, not being subject to the ruling of the Commission, would continue with ordinance 15790 rates, gaining the best of two worlds.

Later, the Commission ruled that the burden of proof rested on the complaining cities to show that their allegations in regard to the Dallas rates were true. In that same ruling, November 22, 1978, the Commission ruled that the petition filed by Farmers Branch on February 4, 1977, complaining of the January 31, 1977, rate ordinance would be an action separate from those filed by the other cities in regard to ordinance 15790. Irving's motion to strike itself as a party to the case was denied. When the City of Dallas attempted to collect the difference between the interim rates ordered by the Commission retroactively from April 1, 1978, to May 15, 1978, and the rates set out by ordinance 15790 for the same period, Irving refused to pay the amount requested, $35,213.42, and alleged that the Commission did not have jurisdiction to order the additional payment.

The merits of the second rate case have never been heard. On December 27, 1979, a Memorandum of Agreement, approved by the governing bodies of all customer cities except the City Council of the City of Farmers Branch, was accepted by the Texas Water Commission (the Texas Water Rights Commission had been renamed), and the complaints of all the cities signing the agreement were dismissed. The first rate case, which had never been reheard by the Commission, was likewise dismissed as to the customer cities that had approved the Memorandum of Agreement.

SECTION 7

LEGISLATION

THE VECCHIO BILL

Attempts to control the outcome of the rate issue through legislation began very early. In fact, before Farmers Branch filed its rate case with the Texas Water Rights Commission on April 30, 1973, Grand Prairie, through its State Representative, introduced a bill designed to accomplish its objectives. On February 6, 1973, State Representative James S. Vecchio announced the introduction of House Bill 415. His announcement stated the bill was "designed to give equitable distribution of water to suburban communities who must depend upon large cities for their water supply". But he left no doubt that the bill was aimed at Dallas.

Vecchio named as co-sponsors "four other Dallas County Representatives, all from suburban communites who must depend upon the city of Dallas for their water supplies". Then he named Representatives from Mesquite, Farmers Branch, Garland and Richardson. Of those cities, only Farmers Branch was depending on the city of Dallas for its water supply. Mesquite and Garland were receiving their water from the North Texas Municipal Water District, and Richardson had announced its intention of leaving the Dallas system to become a customer of the District.

Vecchio went on to explain that Grand Prairie was faced with higher water bills when the contract with Dallas expired in 1975. Vecchio pointed out that "...the city of Dallas is demanding a better than 50 percent increase in the price Grand Prairie now pays for its water".

As further argument for his bill, Vecchio said:

> Water belongs to all the citizens of the State of Texas. Dallas in particular owns the rights to all the water in our area and as a consequence the city is selling water to smaller communities at rates the communities deem to be excessive. Dallas currently sells water to industries at a much lower rate than they do to surrounding municipalities. They do this to encourage industry and as a result, the suburbs are subsidizing Dallas's industrial effort.

The Vecchio bill would have given the Texas Water Rights Commission the power to set the price at which municipalities sold water to each other and to force "the owner or holder of any water right to sell raw or treated water to municipalities for municipal and domestic use". According to the bill, rates to be charged a purchasing municipality were to be the lower of:

> (1) the rates generally charged by the selling water rights holder to its industrial or other most favored user; or
>
> (2) the actual cost of the raw or treated water, the cost to be determined under rules and regulations adopted by the commission.

The bill also contained this clause:

> (b) the rate shall be established irrespective of the fluctuation in daily usage of the purchasing municipality and shall remain constant throughout the period the rates are in effect irrespective of the amount of water used daily by the purchasing municipality.

The bill would have allowed the Commission to establish rates for any municipality party to an existing contract for the purchase of raw or treated water.

Several observations can be made. Farmers Branch and Grand Prairie were harboring doubts about the Texas Water Rights Commission's jurisidiction in determining rates. They were also concerned about Dallas' being able to sell water to industrial users more cheaply than they could. In a sense, they must have feared that Dallas could and would attempt to control their development through water rates. And note that a clause was devoted to eliminating the two-part, demand and volume, rates being urged by Dallas at that time. The bill would have made purchasing municipalities an interested party in every water rate ordinance of the city from which they were buying water, since it would be to their interest to see that one customer group served by the selling city received favorable rates.

The bill ran into difficulty as soon as it became known that it would apply to all cities selling water to other cities. It died on the floor of the House.

CITY OF DALLAS RESOLUTION

Even though a council resolution is not stricly a legislative action, one action by the Dallas City Council can be termed an effort to affect the outcome of the rate case by the action of a governing body. Having gotten a preview of the Texas Water Rights Commission's impending order on September 18, 1975, the City of Dallas decided to reduce its outlay for water utility assets. On February 26, 1976, the City Council of the City of Dallas issued a resolution designed to halt further expansion of its wholesale water sales. Believing that the rate making provisions of the impending order from the Commission would result in losses to Dallas and the subsidization of customer cities, the Council resolved:

> Section 1. The City Manager is directed to make capital improvement investments, until settlement of the rate case, only for system facilities which may serve inside City of Dallas customers and to suspend until the termination of the pending customer city rate litigation or until otherwise directed by the City Council, all other projects for additions or improvements to the water system which would serve customer cities.
>
> Section 2. Unless otherwise directed by the City Council, the Manager is not to enter into new contracts with customer cities and, as current contracts expire, extend them on a year-to-year basis only.
>
> Section 3. Since the present capacity of the Dallas water system serving the City of Dallas and the Dallas County customer cities now purchasing water from the City of Dallas will be exceeded in the near future, and possibly before the present rate litigation is terminated, as a temporary measure and for the purpose of protecting present quantity uses pending the resolution of the present rate litigation, the City Manager is hereby directed to develop a contingency plan and allocate the present maximum capability of the water production distribution system, now estimated at 500 million gallons per day, between the Dallas customer cities and the City of Dallas on the basis of their 1975 water use. A part of the plan should also be to develop an allocation method for dividing the amount allocated to the outside cities equitably amongst those cities.
>
> Section 4. the City Manager or his designee is further directed to develop, reevaluate and reassess in concert with other cities who have long-term arrangements for water with the City of Dallas, Dallas' relationships and comparative responsibilities in the development of a concerted strategy for meeting our mutual water supply needs.
>
> Section 5. The City Attorney is directed to take all steps necessary to protect and defend the interests of the City of Dallas in its water utility system and to contest to the fullest extent any adverse decisions by the Texas Water Rights Commission on rate matters and other matters which may affect those interests.

The new Director of Dallas Water Utilities, Dr. I. M. Rice, proceeded to make allocations of available capacity (500 mgd) to the city of Dallas and its customer cities. On March 29, 1976, he sent letters to the customer cities explaining how he proposed to make the allocation. Then on May 13, 1976, Dr. Rice sent the Texas Water Rights Commission a letter giving the results of the allocation to each city. Rice stated:

> ...it was considered that the fairest method of allocation of the total customer city share among the individual cities would be on the basis of the present rate of flow controller setting or the historical maximum day usage, whichever is the greater. These are set forth in the following table:

Customer City	Present Controller Setting MGD	Historic Maximum Day MG	Allocation Basis MG	Percent	Allocation Quality MGD
Addison	None	0.769	0.769	0.856	0.826
Balch Springs	2.00	2.086	2.086	2.323	2.241
Carrollton	11.45	5.598	11.450	12.748	12.296
Cedar Hill	None	0.770	0.770	0.857	0.827
Cockrell Hill	None	0.809	0.809	0.901	0.869
Coppell	None	0.304	0.304	0.339	0.326
De Soto	None	0.868	0.868	0.966	0.932
Duncanville	4.50	4.898	4.898	5.453	5.260
Farmers Branch	10.25	8.440	10.250	11.412	11.008
Flower Mound (1)	1.00	0.170	1.000	1.113	1.074
Hutchins	None	0.209	0.209	0.233	0.225
Irving/Grand Prairie (2)	29.20	37.447	37.447	41.692	40.215
Kleberg	None	0.242	0.242	0.269	0.259
Lancaster	None	1.516	1.516	1.688	1.628
Richardson	16.00	16.000	16.000	17.814	17.183
Seagoville	1.20	1.155	1.200	1.336	1.289
TOTAL			82.818	100.000	96.458

(1) Service commenced March 1975

(2) Irving and Grand Prairie are served jointly through Field Circle Line. Controller setting of 29.2 mgd represents 23.3 mgd for Irving and 6.0 mgd for Grand Prairie.

In that same letter, Rice advised the Commission that the City of Dallas had engaged Turner, Collie & Braden, Inc., consulting engineers, and Arthur Anderson (sic) & Co., certified public accountants, to conduct a cost-of-service study for water and sanitary sewer services. The consultants were instructed to take into consideration that all capital improvements after the date of the resolution were being limited to facilities which would be required for the exclusive service of inside-city customers.

The idea that Dallas would restrict its expansion of capital investment or get out of the business of supplying water wholesale to Dallas County cities was not simply a reaction to the impending decision. On the first day of hearings before the TWRC, James Wilson, special attorney for Dallas, made this observation:

> It (Dallas) will not accept a rate which requires Dallas rate payers to subsidize the outside towns, nor will it accept a rate which gives some of its outside cities a substantial rate advantage over other outside customers. Dallas cannot continue to serve the outside cities unless it is able to charge rates which cover the cost of such service including the cost of acquiring additional supplies necessary to meet their future growth. We do not beleive that the commission will approve the selfish efforts of the petitioning cities, but Farmers Branch and Grand Prairie and every other city served by Dallas needs to understand that if they succeed in this effort, it can only be self-defeating, because the nature and foreseeable consequence of the rates sought by the City of Grand Prairie and the city of Farmers Branch here would be a drastic change in Dallas' policy of providing water to the outside cities. It may be that Dallas can be compelled to supply outside towns with water which is surplus to its current needs, but Dallas certainly cannot be compelled to go out and obtain additional supplies to meet the outside cities' future needs unless it is provided rates which will adequately cover the cost of such service.

THE PUBLIC UTILITY REGULATORY ACT

Until 1975, Texas gas utilities were regulated by the Railroad Commission, and, except for the Texas Water Rights Commission, whose jurisdiction was yet to be established, no regulatory agency with clear authority over other utility services existed within the state. Each municipality had power through its franchising authority to regulate rates charged by utilities within their city limits, but persons living outside a city had no regulatory body to represent them.

The Texas Legislature passed the Public Utility Regulatory Act (PURA) to become effective September 1, 1975. At first, the law was thought to apply to the City of Dallas (and other cities) by virtue of this wording of the law:

> Sec. 49. For the purposes of this article only: (a) "Retail public utility" means any person, corporation, municipality, political subdivision or agency, or cooperative corporation, now or hereafter operating maintaining, or controlling in Texas facilities for providing retail service...
>
> Sec. 50. Beginning one year after the effective date of this Act, unless otherwise specified:
> (1) No public utility may in any way render service directly or indirectly to the public under any franchise or permit without first having obtained from the commission a certificate that the present or future public convenience and necessity require or will require such installation, operation, or extension.

Dallas officials did not believe the PURA applied to Dallas, but they went so far as to file within the Public Utility Commission (PUC) documents necessary to apply for a certificate of convenience and necessity in order to keep other parties from claiming the Dallas service area. The application was withdrawn just before the filing deadline when it became apparent that no other party would claim the Dallas service area. Later the PUC decided cities were not subject to the PURA except that it would hear cases appealing municipal retail rate actions brought by customers who received service outside the cities from which they were served. Cities could, if their councils desired, turn over rate determination matters to the PUC. Dallas opted to keep its rate making authority. As an interesting aside, Dallas Power & Light Co. had only a few customers outside Dallas' city limits, one of which was a Dallas Water Utilities Department unit. When DP&L felt it needed a rate hike, it went before the PUC concerning its rates to the outside-city customers. The hearings were held and rates were set by the PUC for the outside customers. Then DP&L appeared before the Dallas Public Utilities Department with the rates set by the PUC. Dallas had little choice but to accept the PUC rates or allow still higher rates to its residents.

THE PEVETO AND BLANTON BILLS

Even with the failure of the Vecchio bill to become law and the decision of the PUC that the PURA did not apply to municipalities, the customer cities were not through with attempts to have the Legislature enact laws governing the rates charged by the City of Dallas. In 1977, during the regular session of the 65th Legislature, two bills were submitted to the House Natural Resources subcommittee to put Dallas under regulation. One such bill, House Bill No. 1795, was sponsored by Representative Wayne Peveto of Orange, Texas, who also happened to be the chairman of the House Natural Resources subcommittee. His bill would have given the Texas Water Rights Commission jurisdiction over water rates, set standards for the Commission to follow in regulating water rates, require the selling municipality to give 90 days notice of any rate increase, force that city to justify its increases before the Commission, and give customer cities the right to appeal any rate they considered unreasonable.

The other bill, House bill 1602, submitted by Republican Representative Bill Blanton of Farmers Branch would have placed rate making authority with the PUC. The orginal version of this bill died in subcommittee because of opposition to PUC control. It was revived and moved out of the subcommitttee when the bill was changed to give the Texas Water Rights Commission authority to set water rates. This bill, when reported out of the subcommitte, contained the same provisions as Paveto's bill No. 1795, which was dropped in favor of the Blanton bill. The Blanton bill eventually became law, but it's contents had changed considerably. Here is how the law reads:

> Section 1. Section 6.056, Water Code, is amended to read as follows:

Sec. 6.056. Rate-fixing Power
(a) The commission shall fix reasonable rates for the furnishing of raw or treated water for any purpose mentioned in chapter 5 or 6 of this code.
(b) The term "political subdivision" when used in this section means incorporated cities, towns or villages, counties, river authorities, water district, and other special purpose districts.
(c) The commission in reviewing and fixing reasonable rates for furnishing water under this section may use any reasonable basis for fixing rates as may be determined by the commission to be appropriate under the circumstances of the case being reviewed; provided however, the commission may not fix a rate which a political subdivision may charge for furnishing water which is less than the amount required to meet the debt service and bond coverage requirements of that political subdivision's outstanding debt.
(d) The commission's jurisdiction under this section relating to incorporated cities, towns or villages shall be limited to water furnished by such city, town or village to another political subdivison on a wholesale basis.
(e) The commission may establish interim rates and compel continuing service during the pendency of any rate proceeding.
(f) The commission may order a refund or assess additional charges from the date a petition for rate review is received by the commission of the difference between the rate actually charged and rate fixed by the commission, plus interest at the statutory rate.
Sec. 2. No action or proceeding commenced prior to January 1, 1977, before the Texas Water Rights Commission shall be affected by the enactment of this Act.
Sec. 3. Nothing herein contained shall affect the jurisdiction of the Public Utility Commission.

The law allowed the TWRC to use any method it felt appropriate to set rates under the circumstances of any case before it. TWRC could use the cash method of determining revenue requirements or it could use the utility method. In fact, any method could be used, so long as the resulting rates were not so low as to cause the seller to fail to meet its debt service and bond coverage requirements. Gone was all mention of the "most favored customers" ceiling on rates that would have been in effect had the Vecchio bill become law. Gone was Vecchio's provision for a flat volume rate. And gone also was the requirement of the original Blanton Bill that would have required selling cities to justify their rate increase request with documentation before the Texas Water Rights Commission. It was probably the change of this provision that enabled the Commission to rule, in the second rate case, that the burden of proof was on the plaintiffs.

SECTION 8

COMMUNITY INVOLVEMENT

> "A century ago, frontier ranchers and their hired guns waged bloody range wars for possession of a precious commodity--water. The bloodshed has stopped, but feuding over water rights continues as bitterly as ever. In North Texas, the combantants are entire cities competing for a share of the area's rapidly diminishing water resources."

That observation was made by Dave Montgomery in the Dallas Times Herald on June 6, 1976. It is a very good description of what was going on at the time. The water dispute originally between Dallas and two cities, Farmers Branch and Grand Prairie, was rapidly escalating. Not only were other cities involved, politicians, lobbyists, individuals, newspapers and assorted organizations outside the city governments were getting into the action.

POLITICIANS AND LOBBYISTS

Politicians, especially State Represetatives and Senators, were involved in attempts to produce laws that would help their constituents in the rate controversy from before the first petition was filed with the TWRC until fifteen cities reached a settlement with Dallas. They were not alone. On March 15, 1977, The Dallas Morning News reported that eleven of Dallas' customer cities had agreed to hire the law firm of Hutchinson, Price & Boyle to lobby for a bill that would have put municipal water rate matters within the jurisdiction of the Public Utility Commission. The News noted that Ray Hutchsion, senior partner of the law firm was the State Republican party chairman and a former member of the Texas Legislature. (He had been a Senator). Rayford Price had been Speaker of the House, and Boyle had been a member of the House. The law firm was to be paid a maximum of $40,000.

On March 23, 1977, hearings on the bill were held in Austin. The Suburban News, in an article dated the same day, reported that 46 suburban representatives including 24 residents attended the hearings.

At the hearing before the TWRC on July 13, 1976, when the Commission was to hear oral arguments summing up the cases of the litigants, the entire city councils of the cities of Dallas and Farmers Branch were present. The largest delegation, from Farmers Branch, included newspapermen, businessmen, and a representative from an area chamber of commerce. The group from Grand Prairie consisted of only seven persons other than City Manager Clifford Johnson. When asked to introduce this group, Johnson said, "Mr. Chairman, we didn't bring all the citizens of Grand Prairie, just a few of them--" (Laughter)

THE TEXAS MUNICIPAL LEAGUE

At the 64th convention of the Texas Municipal Leauge, held in Dallas in 1976, Farmers Branch introduced a resolution which was approved by the resolutions committee by a vote of 21 to 16. The resolution was directed at the Texas Water Development Board, which administers a fund to help finance local water projects. Earlier in the year the Board had not acted on a request by Farmers Branch and other cities to obtain funds with which to sponsor construction of Aubrey reservoir. The Dallas Morning News (11-16-76) reported that the resolution:

> ...recommends the Texas Water Development Board give "special consideration" to needs of cities without an independent water supply when revisions are made to the Texas Water Plan.
>
> The proposal also urges the board to prohibit spending funds on new water supplies unless all cities in the area are given the opportunity to receive "a fair share of the benefits".
>
> Finally, the resolution recommends the fair share of each city be determined before the Texas Water Development Board approves construction of new water reservoirs.

When the resolution came before the full membership the next day, however, the results were somewhat different. Mayor Pro Tem Adelene Harrison spoke against the resolution saying:

> I don't think the Texas Municipal League wants to become the kind of group that takes sides when two or three of its member cities are in conflict with each other.

The members voted 90 to 10 to table the resolution.

INDIVIDUALS

In view of the widespread publicity the water rate controversy received, it may seem surprising how little attention individuals paid to it. After HB 1602, supported by the customer cities' lobbyist Rayford Price, was voted out of the House Natural Resources Subcommittee, Price urged local residents to write their Senators and Legislators urging them to pass the bill. In view of the law that finally emerged, it seems doubtful that the law makers received many letters.

Just how much the public was aroused by flyers distributed on July 12, 1977, announcing water rationing in DeSoto, is also questionable. But the flyers did attract the attention of Dallas officials. The flyers said that watering restrictions were needed "because the City of Dallas has refused to sell additional water to the City of DeSoto". When Dallas Morning News reporters asked Dallas Water Utilities Director I. M. Rice about the allegation, Rice replied that DeSoto had been told that Dallas would sell them more water, but he needed a written request before he could act. At that time he had not gotten the request. The next day the DeSoto City Council voted unanimously to request the City of Dallas to sell DeSoto another million gallons of water per day. DeSoto's request was filled.

NEWSPAPERS

The water rate controversy made good newspaper copy. Newspapers carried accounts (sometimes of questionable accuracy) of almost every action taken by the litigants. One must presume that it was only a matter of time before the litigants would want to use the newspapers to present their views, and they did this, it appears, almost every chance they had. But according to an article that appeared in the Dallas Times Herald on May 11, 1976, Dallas city officials had been trying to keep the controversy quiet:

> Adelene Harrison tried hard during her three months as mayor to keep a heretofore quiet dispute between the City of Dallas and some of its suburban water customers from becoming an ugly, headline-making public fight.

But, the Herald went on to say, Mayor George Grimmer of Farmers Branch mailed letters to Dallas customer cities criticizing the Dallas position on water rates. That letter was soon followed by another, so Ms. Harrison wrote one of her own to the same persons telling them that she was not going to engage in public debate with Grimmer. Then nine area towns banded together as the Association of North Texas Cities "for the sole purpose of publicly fighting Dallas in the water rate controversy". At that time George Schrader, City Manager of Dallas, released for publication an eight page memo in regard to the dispute.

It is difficult, if not impossible, to determine which articles were furnished to the newspapers by the litigants and which were written totally by the newspapers themselves, but one conclusion can be drawn. The two large dailies, The Dallas Morning New and The Dallas Times Herald wrote articles and editorials generally favorable to the city of Dallas viewpoint while the suburban papers tended to favor a different view.

THE COMMITTEE FOR FAIR WATER RATES

On January 4, 1977, the City Council of the City of Carrollton met to decide whether or not to hire a consultant to examine the new rates being proposed by Dallas at that time. Other customer cities were invited. At that meeting it was noted that it may be possible for some of the cities to band together to hire a consultant, since doing so would enable them to share the cost.

Later, Irving, Texas, officials announced that they would not paritici-pate, but ten cities said they would share the cost, then estimated at $44,000, of a study of the Dallas water rate proposal. Touche Ross & Co. was employed to make a preliminary study for about $8,000. Their report indicated that several areas of the Dallas proposal would warrant further consideration.

On May 3, 1978, a group of nine representatives from Dallas' customer cities met in Carrollton as the Committee for Fair Water Rates. They asked Attorney Louis Nichols to represent them and to recommend an accounting consultant the following week. Mr. Nichols recommended Joe M. Nall, a former supervisor of the Dallas Public Utilities Department, Dallas' agency for regulating utilities other than its own Water Department. The group agreed to have Nall's firm represent them at the Texas Water Commission.

CHAMBERS OF COMMERCE

The local Chambers of Commerce had been involved in the controversy. They had sent representatives to hearings at the Texas Water Rights Commission and the Texas Legislature. On March 23, 1977, the Suburban News reported that area chambers were providing half of the $40,000 to be paid to Hutchinson, Price & Boyle for lobbying in behalf of the customer cities.

In 1979, the Dallas Federation of Chambers of Commerce formed a committee to investigate the possibility of settling the rate controversy.

The Federation was composed of 28 area chambers of commerce, and John Clark, Division Manager, Resident Services for Dallas for Southwestern Bell, was the presiding officer. The Federation formed a committtee to hear the concerns of members, excluding Dallas, about the effects the rate quarrel was having on their communities. They adopted a plan calling for area members or other influential persons within the communities to call upon their city officials urging them to settle their differences with Dallas. They also contacted Dallas city officials. From these urgings, customer cities began meeting with Dallas personnel. Eventually, a settlement was reached with all but one of the customer cities, Farmers Branch.

THE SETTLEMENT

The events and tactics used to reach a settlement of such a long, detailed and bitter controversy are the subject of another study. The Memorandum of Agreement is certainly a brief document to cover such a broad range of issues. It is reproduced here in its entirety, except for the signatures:

MEMORANDUM OF AGREEMENT

1. Purpose: The purpose of this agreement is to settle current rate disputes, and to provide a basis for determining rates in the future.

2. Water System Policy: Dallas operates a water system to provide safe and reliable water supply, adequate for the current water use and future growth of Dallas and customer cities, and to avoid any substantial subsidization of any class of customers by any other class of customers.

3. Responsibilities:

   a. Dallas is responsible for planning, financing, constructing and operating the water supply system to the extent permitted by available water revenues, for developing cost of service information to support rate changes, and for informing customer cities of changes and financial data.

b. Customer cities are responsible for keeping Dallas informed concerning their projected water supply needs and operating requirements, for planning and managing their system to promote water conservation and efficient system operation, and for paying rates adequate to cover costs incurred in providing service to them.

4. Rate Setting Principles (for wholesale treated water)

a. Revenue requirements are to be determined on utility basis, at original cost.

b. Dallas is to receive a rate of return on rate base equal to embedded interest rate plus 1.5%, which is agreed to be an adequate return to cover its costs and risks and as compensation for ownership and management responsibilities.

c. All existing and future reservoirs and associated facilities are to be included in a common rate base. Customer cities as a class, shall pay their proportionate share of costs for reservoir storage, including that portion held for future use. Initially, customer cities shall cover 26% of total reservoir costs. This percentage shall be increased or decreased in direct proportion to future changes in actual usage in conjunction with periodic cost of service studies. (Dallas pays the balance.) Allocation of the costs is to be based on curent use.

d. There will be a two part rate (volume and demand), with allocation of costs in rate design to encourage efficient operation of water system.

e. At the end of ten years, and each ten years thereafter, the City of Dallas or a majority of customer cities who are a party to this agreement may request a review of the above rate setting principles; and if so, the principles shall be subject to renegotiation.

5. Initial Rates and Rate Base Allocations: The initial rates accepted under this agreement are:

Rate of Flow Controller Cities - 10.42¢/1000 gal
and $36,739/mgd

Flat Rate Cities - 43.04¢/1000 gal

Initial Rate Base Allocations shall be as follows:

Reservoirs	25.7%
Raw Water Transmission	19.4%
Purification Facilities	19.4%
Treated Water Transmission	19.4%
Distribution	2.3%
Other/Administration	14.4%

Dallas will prepare a cost of service study to support these rates and allocations, and will submit it to the customer cities to review and accept prior to submission to the Texas Water Commission.

6. Term: The term of this agreement is thirty years, and such additional periods as the parties may agree upon.

7. Approved changes: Changes in the rate setting principles or other conditions may be made by mutual agreement of all parties at any time. If any state or federal government agency having jurisdiction disapproves any material part of this agreement during the term, the agreement is subject to cancellation by any party.

8. Individual contracts for wholesale water service between Dallas and customer cities will be consistent with the Memorandum of Agreement. Dallas and customer cities will honor their existing water service contracts.

9. Individual Interest in Reservoir the City of Dallas will negotiate with such customer cities that desire to purchase an individual interest in the present Dallas reservoir system. This offer to negotiate shall not extend past 9/1/82.

10. Execution of this agreement by the undersigned indicate that such individuals will recommend to their respective city councils or governing boards settlement of the rate controversy on the basis set forth herein.

> The "settlement" was not approved by the City of Farmers Branch. That city has filed petitions for hearings before the Texas Water Commission in regard to the rates changed by Dallas subsequent to the settlement. The success of the settlement must be considered in light of this limitation.

SECTION 9

POLITICAL FALLOUT

It would be difficult to have a controversy so vital to any community as water rates without having implications in other subjects. This controversy was no exception. The issue of water rates had hardly become public before other related issues began to arise.

CONTROL OVER CUSTOMER CITIES

Very early in the controversy, and before the hearings began, James S. Vecchio, State Representative from Grand Prairie, released a statement concerning the controversy when he introduced a bill in the Texas Legislature. In his release, dated February 6, 1973, Vecchio stated:

> Dallas currently sells water to industries at a much lower rate than they do to surrounding municipalites. They do this to encourage industry and as a result, the suburbs are subsidizing Dallas's industrial effort.

On the first day of the hearings, December 4, 1973, Mr. Jerry Brownlow, attorney for Grand Prairie, stated..."the rates that will be determined in this hearing are going to have a very grave effect on the economics, both of Dallas and the customer cities."

On the witness stand, Mr. Clifford Johnson, City Manager of Grand Prairie, testified that the water rate was "the critical factor in the location" of the Missile and Space Division of LTV, which, incidentally had decided to locate in Grand Prairie. He testified further in response to Mr. Brownlow's question:

> Q. So based on that, Mr. Johnson, and on the other experiences of like nature relative to the attraction of industry and development to the City of Grand Prairie, is it your opinion that the water rates charged by a city has a very serious effect on your growth pattern?
>
> A. Definitely so.

On June 6, 1982, in an interview granted specifically for this report, Mr. Johnson restated his opinion:

> ...We know that economy can be completely controlled with water, no question about that, and we felt like there was an intent on Dallas's part to completely control the economy in Dallas County through the use of water rate structure...

And in the same interview when asked:

> What was the final point that triggered your decision to seek help from the Texas Water Rights Commission?

he replied:

> I think when Dallas continued to manipulate volume and charge a capacity charge. When they did that it became very obvious that they were setting and continuing to push for low volume charge and a high capacity charge and that, because of the way it was structured, was forcing the cities to abandon their water wells and/or use them only under certain circumstances that was predicated by the City of Dallas. When we found out that there was just absolutely no method for open communications, and we saw there was definitely an attempt whether implied or otherwise was immaterial - there was an attempt by Dallas to control, in my opinion, the growth pattern and the way we developed our water system based on the way they manipulated the rates. And we would ask for some explanation of the way those rates were structures, and we would get none at all. They'd just say, "well, this is it. Take it or leave it."

Grand Prairie was not the only city to express fear that Dallas was trying to control its growth. Dallas and Denton were trying to obtain a permit from the Texas Water Rights Commission to construct Aubrey Reservoir without making water available to other cities near the site. On May 20, 1976, the Dallas Morning News published this report:

> AUSTIN--Mayor H. P. Bacchus of Frisco said Wednesday his city would fight in the highest courts to force Dallas to furnish water to suburban cities or step aside so the little towns can plan their own water supplies. "It looks like they've trying to pull the growth back into Dallas," Bacchus said, accusing the city of deliberately trying to cut off future water supplies for fast-growing smaller cities in the Metroplex.

Officials of the City of Carrollton, one of the Dallas customers, also made statements that showed their concern that Dallas was trying to control the growth of cities in the county. The Dallas Morning News printed this story on February 24, 1977:

> CARROLLTON--Representatives from eight of Dallas' 17 water customer cities charged here Wednesday Dallas is trying to block progress on a consultant's water rate study because "Dallas is attempting to control growth of suburban cities."...
> ..."If Dallas is trying to control the growth of suburban cities, this is one way to do it," (Mayor) Steenson said.

During the hearings before the Texas Legislature's House Natural Resources Subcommittee concerning House Bill 1602, sponsored by Farmers Branch's Representative Bill Blanton, the suburban cities sent a group of 46 persons to testify and comment. According the The Farmers Branch Times, March 31, 1977:

> During the hearing, the suburban representatives testified that the bill is necessary to free Dallas' stranglehold over the future growth of its neighbors.

Then, on April 6, 1977, a (Farmers Branch) Suburban News editorial asked:

> ...Could it be that Dallas hopes to choke off growth in the suburbs by making the suburbs uninviting to industry and new residential development.
>
> If Dallas is able to succed (sic) with a plan such as this, it would be able to control growth in the suburbs and possible (sic) force suburban citizens back into the central city.
>
> ...Another possibility would be the annexation of smaller cities, such as Renner, who wish to receive Dallas water but cannot afford the price. Granted, Renner may not be a fair example, but Dallas has already demonstrated its desire to snap up land to the north...

LAKEVIEW RESERVOIR

The subject of Lakeview Reservoir (Lakeview) arose on the first day of hearings, December 4, 1973. Lakeview had been given Congressional approval in 1964 as a U.S. Army Corps of Engineers project with the Trinity River Authority (T.R.A) of Texas as the local sponsor. T.R.A. was to contract with the Corps of Engineers to build the reservoir. But T.R.A, having no funds of its own to subsidize construction of water supplies, had to have firm contracts with other entities to purchase the water and to pay for T.R.A.'s share of the reservoir costs. The reservoir site was on the Trinity near Grand Prairie and Cedar Hill. Apparently, the decisions concerning Grand Prairie's participation in the project were not easy ones.

At the first day of hearings before the Texas Water Rights Commission, the Director of Public Works for Grand Prairie testified that construction cost of the reservoir would amount to about $70 million and expressed doubt, because of the high cost, that the project would be built. Later the same day, the point was made by the attorney for Grand Prairie that the Texas Water Rights Commission had refused T.R.A and local cities a permit to impound water at Lakeview because the Commission felt the project was not feasible.

Nevertheless, Petitioner's Exhibit number 39 of May 29, 1974 contained this statement:

> By about 1980 and thereafter, it is anticipated that Grand Prairie will be in position to secure all of its water requirements from the Lakeview Reservoir, for which construction funds are included in

the current Federal budget, from wells, and from the Tarrant County Water District (eventually, it is estimated that approximately 40% of Grand Prairie's use will lie in Tarrant County).

On January 9. 1975, T.R.A. called a meeting of cities interested in receiving Lakeview water (Grand Prairie, Cedar Hill, Duncanville, DeSoto, and Midlothian). Grand Prairie had said they could use the entire 14 mgd capacity. At the meeting Duncanville backed out and Grand Prairie said that the cost of the reservoir, then estimated at $143 million, and raw water at $.85/1,000 gallons, was "unreasonable". Nevertheless, the Grand Prairie city council later voted to participate. But, because of the cost, they voted to participate in only 1.5 mgd of the 7 mgd that had been allocated to Grand Prairie. Ground breaking ceremonies were held in November, 1979, for Lakeview project, 15 years after Congressional authorization. The project was then estimated to cost $243 million, more than six times the $39 million original estimate.

According to a T.R.A. spokesman on July 13, 1982, the cities participating in the Lakeview project are:

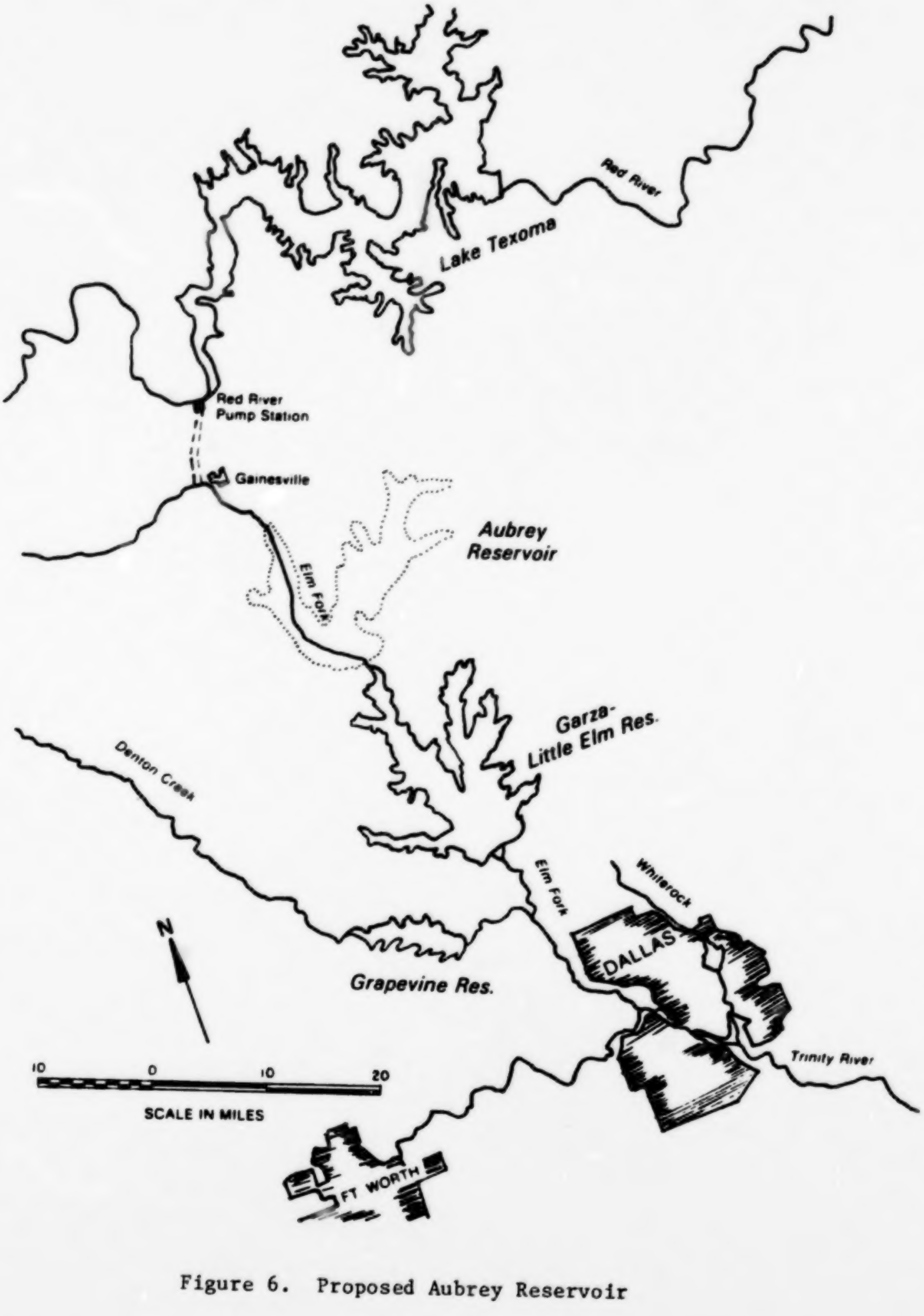
	Percent	MGD
Grand Prairie	10.56	1.50
Duncanville	7.04	1.00
Cedar Hill	43.21	6.14
Midlothian	39.19	5.56
	100.00%	14.20 MGD

AUBREY RESERVOIR (RAY ROBERTS LAKE)

Aubrey Reservoir site, located on the Elm Fork of the Trinity River upstream from the Garza-Little Elm (Lewisville) Reservoir (Figure 6), was in the long-term water supply plans of Dallas as a possible source of supply from the days of the Vollmer Committee. On March 26, 1969, Dallas and Denton made an application to the Texas Water Rights Commission for those cities to be designated as cooperating local sponsors to negotiate with the United States Army Corps of Engineers for the construction of the project. Dallas was to pay 74% of the costs, Denton, 26%.

After years of delay due mainly to lack of Federal funding, the application was brought before the Commission for hearing. By then, February 19, 1976, the rate hearings before the Commission were in full swing. Aubrey Reservoir project became a major issue in the dispute.

Dallas representatives had had a look at the Hearing Examiner's Proposal for Decision, and they felt that the proposal was not going to give Dallas a reasonable incentive to continue to expand its capital investment to supply any city other than Dallas. In fact, the Dallas City Council was soon to pass a resolution on February 23, 1976, which stated that it would no longer expand its facilities for the purpose of adding anything to its system other than what would be needed for the City of Dallas only. So at the hearing on the Aubrey petition, Dallas attorneys refused to accept any condition that would require Dallas to serve customer cities from the Aubrey Reservoir. The cities


Red River
Lake Texoma
Red River Pump Station
Gainesville
Aubrey Reservoir
Elm Fork
Garza-Little Elm Res.
Denton Creek
Elm Fork
Whiterock
DALLAS
N
Grapevine Res.
Trinity River
10
0
10
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SCALE IN MILES
FT WORTH

Figure 6. Proposed Aubrey Reservoir

of Frisco and Gainsville and the Colony Municipal Utility District in Denton county had applied for right to withdraw water from the reservor. Dallas asked that these applications be denied.

According to an article in The Dallas Times Herald on February 19, 1976, the Commission chairman was "chilled" by Dallas' attitude, and said the he would attempt to refuse the Dallas application at the next hearing on March 18, 1976.

Denton and other cities, including Farmers Branch, attempted to obtain a loan from the Texas Water Development Board in order to fund the project in the event Dallas was not granted a permit. The Board took no action. But the vote was 5 to 1 to consider the matter further. The Dallas Morning News reported on March 17, 1976, that had the Board given a favorable indication to these cities, that indication could have been used "to assure sufficient sponsors to justify the project and encourage continued federal participation." (without Dallas).

The March 18, 1976, hearing before the TWRC did not result in a denial of a permit to Dallas. Instead, a compromise proposal was considered. The proposal left Denton and Dallas as exclusive sponsors of the Aubrey project. It would have required Dallas to continue serving municipalities in the North Texas area, but those cities would have to pay Dallas a share of its costs. The Commission delayed further action until April 22, 1976, when the Commission staff was to have the formal wording of the proposal.

On April 22, 1976, the staff wording of the compromise proposal was presented. But, The Dallas Times Herald reported that day, Dallas attorneys were dissatisfied with the staff report because it failed to spell out adequately that suburban cities would pay a reasonable share of Dallas' water costs. The Herald quoted attorney James Wilson as saying:

> This simply allows Dallas to build a water supply at its own expense and allows all other cities to come in and play dog in the manger. If Dallas accepts a permit under these conditions, it would be fiscally irresponsible.

The next meeting of the Commission to hear proposals on the Aubrey permits was held on May 19, 1976. The Commission told attorneys for Denton and Dallas to write a mutually agreeable permit which did not require Dallas to provide water to surrounding communities. Because the project was in jeopardy, the Commission chairman dropped his position that Dallas should be required to serve any city. The Dallas attorney said that Dallas was not giving any assurances that it would participate in the project. Before Dallas would do that, it would have to see how the Commission acted on the rate case.

Commissioner Dorsey Hardeman was not happy with the language of the proposed permit, which merely said that Dallas would continue to serve other communities if it could get a fair price for its water. He was quoted by the Farmers Branch Suburban News as saying, "We ought to postpone this thing until we get that damned rate case out of the way". He voted against the permit on

June 22, 1976, but it was granted at that meeting of the Commission. The project was put underway after a settlement agreement on the rate issue was reached between Dallas and all its customer cities except Farmers Branch.

DALLAS SERVICE AREA POLICIES

The City Council of Dallas adopted a resolution on April 28, 1975, setting out its policy for serving customer cities which adopted recommendations made by the Long-Range Water Supply Advisory Committee, an extension of the Vollmer Committee. That resolution read, in part:

> "BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DALLAS:
>
> "Section 1. That the Long-Range Program as recommended by the City of Dallas Water Supply Advisory Committee be and is hereby adopted and the City Manager is instructed to proceed with the implementation of the plan insofar as the central city requirements demand and to develop future water resources for those county communities and communities in the area of origin which obligate themselves by contract to participate fully in the cost of providing such facilities plus repayment for production and resources developments owned and paid for by the citizens of Dallas dedicated to their present and future requirements;"

Later, on February 23, 1976, the City Council adopted a resolution restricting construction of facilities to those that would serve customers inside the city only. With the advent of the rate settlement agreement, this resolution was repealed, leaving the 1975 policy intact. But now, with the experience of the rate hearings behind them, the Council decided to adopt policies defining what it proposed to do. Service area, the type of water service to be offered-raw or treated, wholesale or retail--and the policy for pricing water service, especially to new customers, all had to be determined. Peat, Marwick, Mitchell & Co. teamed with Lockwood, Andrews and Newnam, Inc. to produce these recommendations taken from the executive summary of their report of May, 1980:

1. The construction of Aubrey Reservoir is crucial to the question of accepting new customer cities.

2. Except for the Elm Fork Basin of the Trinity River, communities in the vicinity of Dallas reservoirs have service available from other wholesale suppliers established in the respective river basins.

3. With Aubrey Reservoir, the Dallas system appears to have adequate water supplies available for present and future customers in the Elm Fork Basin until the year 2000 and a reasonable period beyond.

4. Treated water service might best be limited to new customer cities adjacent to Dallas or cities presently served.

5. Raw water directly from the three reservoirs within the Elm Fork Basin may be made available to that portion of the Elm Fork Basin surrounding the three reservoirs (Grapevine, Lewisville, and Aubrey).

6. Although not specifically planned, sales could be made out of eastern reservoirs on the same basis if service is desired from Dallas rather than a local agency.

DALLAS LEVIES A TAX ON ITS WATER UTILITY DEPARTMENT SERVICES

During the hearings of the first rate case before the Texas Water Rights Commission, a witness for the City of Grand Prairie, Texas, testified that $300,000 had been transferred from the water fund to the general fund. A witness for the City of Farmers Branch, Texas, testified that all revenues from retail sales of water within that city were placed in the general fund. Then the petitioners' exhibit number 19, a booklet entitled "Water Rates American Water Works Association Manual of Water Supply Practices" indicated that part of the revenue requirements under either the Cash Basis or the Utility Basis could be taxes. Nor did it matter that the water utility was owned by the municipality.

> The provision for payment by the water utility of local taxes and for payments in lieu of taxes depends on local policy and will vary widely among the utilities.

So said the Manual. All this testimony was not wasted on Dallas officials. During the cost-of-service study that was conducted by Turner, Collie & Braden, Inc. and Arthur Andersen in 1976-77, Dallas proposed to levy a "street rental fee" as a percentage of gross water sales. Supposedly, the use of the term "fee" keeps this charge from being a tax, but its effect is the same (as is the percent) as the gross receipts tax levied on privately-owned franchised utilities in the City of Dallas.

Since Turner, Collie & Braden consultants were required by contract to explain the rate study to customer city representatives in a series of meetings, they mentioned the new charge. The representatives from the customer cities called this an attempt to tax the suburbs and protested the levy. The consultants were requested by Dallas officials to remove the charge from water sold to the suburbs, but the charge to Dallas citizens remained.

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